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ABSTRACT

This work is intended to find replies to practical questions, such as how well native speakers of Spanish are decoded by native speakers of English, which errors interfere with decoding by the listener, and what the implications of the study might be for teaching. Fifteen Chileans were asked to tell stories in English, and several panels of native English-speaking listeners were asked to judge these stories for intelligibility, comprehensibility, grammaticality, and acceptability. It was hypothesized that although correlated, intelligibility (ease of being decoded) and comprehensibility are different concepts. It is also thought that the variables affecting intelligibility and comprehensibility are roughly the same. No correlation was found between intelligibility and comprehensibility, on the one hand, and grammaticality and acceptability, on the other. In spite of a large number of errors, the non-native English speakers proved to be easily decoded by the native English speakers. A synthesis of isolated errors was submitted to additional panels of judges. Pronunciation errors proved the most critical, followed by semantic and syntactic errors. The relatively low criticality of syntactic errors and errors of intonation seems to be of pedagogical interest. Intelligibility and comprehensibility proved not correlated with formal proficiency testing. (Author/AMH)

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FOREIGN LANGUAGE PERFORMANCE REQUIREMENTS FOR DECODING BY NATIVE SPEAKERS: A STUDY OF INTELLIGIBILITY OF FOREIGNERS' ENGLISH

by

Leopoldo Wigdorsky-Vogelsang

A dissertation submitted to the
University of Essex
in candidacy for the degree of
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ABSTRACT

FOREIGN LANGUAGE PERFORMANCE REQUIREMENTS FOR DECODING BY NATIVE SPEAKERS: A STUDY OF INTELLIGIBILITY OF FOREIGNERS' ENGLISH

by

Leopoldo WIGDORSKY-Vogelsang

Academic advisor,
Prof. A. Spicer.

This thesis is intended to find replies to practical questions such as how well are we (native speakers of Spanish) decoded by native speakers of English when we speak their language, which of our errors interfere with decoding by the listener (i.e., are "critical"), and what are the didactic implications of the answers obtained.

Rather than trusting our professional experience, we decided (particularly because of the fact that we ourselves are foreigners to English) to undertake several experiments whose detail is given in the thesis itself. Basically, we asked fifteen Chileans to tell as many unpredictable stories and several panels of native English-speaking (RP) listeners to judge these stories

for their intelligibility (i.e., ease for being decoded); ancillarily, the RP listeners were asked to judge the stories --or sentences based on such stories-- for their comprehensibility (i.e., ease for being understood), grammaticality, and acceptability.

We hypothesize that although (moderately) correlated, intelligibility and comprehensibility are different concepts, the latter proving invariably higher than the former. We maintain that the reason for this is to be found in the fact that comprehension is an active process, where the listener's general experience plays a more important role than it does in decoding. We also maintain that the variables affecting intelligibility and comprehensibility are roughly the same, but that they have different incidence in each case.

On the basis of our data we hypothesize that, other things being equal, native speakers have a better chance than proficient foreign speakers of decoding foreigners' English.. We also hypothesize that one repetition of the texts improves intelligibility only slightly (8.4 per cent, $p > .10$).

We did not find any correlation between intelligibility (and, consequently, comprehensibility), on the one hand, and grammaticality and acceptability, on the other hand. This suggests that native speakers' intuitions are not always reliable and confirms the idiolectal variety of English (or of any language, for that matter).

In spite of the large number of errors made (approximately 250) our speakers proved easily decoded, as a group, by the RP "judges." Few errors appeared in isolation, and those that did were seldom critical to intelligibility (i.e., decoded by 70 per cent or less of the "judges"). This made it necessary for us to "synthesize" isolated errors, which were submitted to additional panels of "judges." Of these, pronunciation errors proved the most critical (21.6 per cent wholly critical plus 14.8 per cent partly critical), followed by the semantic errors (15.8 per cent critical) and the syntactic errors (14.5 per cent critical). This is not surprising if we consider that many errors, both semantic and syntactic, seem to originate in errors of pronunciation. The relatively low criticality of syntactic errors and errors of intonation seems to be of pedagogical interest. It is worth observing, in relation to this, that both intelligibility and comprehensibility proved not correlated with formal proficiency testing.

There are --we believe-- several implications for teaching, particularly at the secondary-school level, the most important being that --because of the unbalanced importance given to syntax-- foreign language teaching in Chile does not seem to cater to the student's wish to communicate. This and other considerations suggest the urgent revision of the aims and objectives of foreign language teaching.

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PHONETIC SYMBOLS

In general, the phonetic symbols are explained as they appear in the following pages. The symbols listed below require --we believe-- a previous explanation:

C^h	aspirated consonant
C˙	unaspirated consonant
C˺	incomplete release
C̥	incomplete articulation other than incomplete release
V́ or 'V	primary stress (also, word stress)
V̂	secondary stress
Ṽ	nasalized vowel
V^	vowel higher than normal
V̥	devoiced vowel

[ɾ]	one-flap /r/	[ɼ]	fricative /r/
[r̃]	rolled /r/	[ɹ]	retroflex /r/
//	long pause	/	short pause
	silence	Ø	deleted, or deletion of, segment(s)

Pitch levels:		
________	1	"extra-high"
________	2	"high"
________	3	"level"
________	4	"low"

L1	speaker's native language	RP	"Received Pronunciation"
L2	speaker's second or foreign language	SA	"Standard American English"

STATISTICAL SYMBOLS

$\bar{x}$	Average
Mod.	Modal value
S.D.	Standard deviation of the sample
r	Pearson's product-moment correlation coefficient
r_s	Spearman's rank-order correlation coefficient
t	"Student's" _t_-test of significance
U	Mann-Whitney test of significance
p	level of significance [*]
P	Probability of chance occurrence [*]
S_{mean}	standard error of the mean
S_p	standard error of the proportion

---

[*] Values given are for two-tailed tests, unless otherwise indicated.

INTRODUCTION AND STATEMENT OF PURPOSES

This thesis is written from the point of view of a foreigner who uses English. It aims at getting answers to very practical questions, such as the following,

-- Just how well are we, foreigners to English, understood by native speakers of English?

-- What and how many errors can we make and still be decoded or understood[1] by native speakers of English?

-- Which of our errors[2] actually block communication with the native speaker and which merely give us a "foreign accent"?

-- Which of our errors, though not critical[3] to communication with native speakers, are not acceptable[4] to them?

-- What is the importance of context, the listener's general experience, and other extra-linguistic variables in the decoding and in the comprehension of what we say?

-- In general terms, how far behind native speakers of English do we stand in our ability of making ourselves understood?

-- What is the relevance of these --and other-- questions to the teaching of English as a foreign language in Chile (and in other countries, as we can assume that many of the conclusions suggested in this essay may be extrapolated) ?

Naturally these and similar questions cannot be answered without a certain degree of technical precision in our terminology and -- particularly-- without considerable reduction of our "universe." We shall refer to this in due course.

We are concerned, of course, with only one of the five "basic skills" --i.e., speaking-- from the receiver's viewpoint rather than from the transmitter's. In other words, rather than asking "How well?" we pronounce or form our syntagmatic units as compared with an abstract norm or model, we are asking "Are we being 'received' by native speakers?" and "Which of our errors are most disturbing to the native speaker?"

Questions such as these and the ones asked in the opening lines of this section are by no means idle. It is our strong belief that the very survival of foreign language teaching --in countries such as Chile, at least-- depends largely on the right answers to them, for here we come to the crucial problem of the ultimate aim, or aims, of foreign language teaching in a given community.

In many countries, the general aims of foreign or --particularly-- second language instruction are clear. The second language is needed to pursue higher studies, to conduct business or even to communicate with co-nationals in an extensive and heavily populated territory where several vernaculars compete for primacy. However, this is not the case in countries such as Chile: it is relatively small (both in area and in population), virtually the nearest to a mono-lingual country we can think of, and the national language --Spanish-- possesses both one of the widest currencies in the world (which increases still further if you consider its similarity with other Romance languages, particularly with Portuguese and Italian) and one of the most distinguished scholarly traditions. And while it is true that all of the Spanish-speaking countries on the American continent are economically "developing" nations and, consequently, have so far contributed relatively little to the world store of scientific knowledge (though certainly not so to the store of literary achievement), it is no less true that the great publishing houses in Barcelona, Madrid, Mexico City or

Buenos Aires nowadays translate and publish technical books with greater expediency than do their counterparts in Rome or Paris.

Very few would base the case for teaching foreign languages on the need to read the language. The theoretical, empirical, pragmatic and pedagogical arguments in favour of "speech first" are well-known and certainly need not repeating here. Although it is not a proven assumption, the primacy of the spoken over the written language is a fundamental axiom of contemporary linguistics. Moreover, virtually all foreign language instruction in Chile (and in most countries where motivation for foreign language learning is high, including Britain and the United States) is predicated pedagogically on this assumption. Robert Lado (1964) summarizes these arguments in the need to provide learners (particularly young learners) with what he calls "total experience" with a foreign language. Decades of failure to achieve that aim --communicating orally-- has brought foreign language teaching to a critical situation in Chile, and possibly everywhere. How can you justify the investment in six hundred teaching sessions when little or nothing is achieved? (Strevens, 1971).

Many foreign language teachers and linguists in parts of the world other than Latin America have been sensitive to this state of affairs. I.A. Richards (1960) writes,

> The dissatisfaction with customary English studies touched on above are bitterly felt the world over. They are reflected in the fluctuations of pedagogic views of 'grammar' as well as in much energetic searching for curricula . . . .

and Max Kirch (1970) says that

> . . . students have cited poor teaching as a major reason for their demands for change: they don't see why they should spend their time studying something which appears to them to produce no tangible results.

Jain (1974), in what he calls "law of diminishing results," maintains that

> . . . the cost of storing and retrieving seems to be out of proportion . . . further and further subclassifications appear to bring the learner very insignificant results . . . to be out of all proportion to his limited aim in using English as a tool of communication.

Worse, still, than the situations described above is the fact that the learner soon becomes unmotivated and thus his chances to learn how to use the foreign language, even with the aid of the best teaching approaches, are seriously jeopardized, perhaps forever.

It seems to us that unproductivity in foreign language teaching may be mainly attributed to aims and objectives which are obscure or vague, oftentimes unrealistic. What do we mean when we expect "communicative competence"? Just how well do we expect our students to communicate? Do we expect all our students to reach the same level of "communicative competence"?

It is our opinion that, while most students wish to achieve a certain degree of oral communicative competence, very few students wish (or, for that matter, need) to attain near-native performance. This is a fact which is seldom taken into consideration by foreign language planners, as a result of which foreign language teaching abounds in matters of detail (particularly morphological, not to mention the unrealistic objective of providing students with a "native accent") which are of little or no consequence for the reception of and expression in the foreign language.

Speaking on the aims of foreign language teaching, Max Gorosch (1973) writes,

> It is primordial to state not only the optimal levels of proficiency to be reached in the final stages, but also the acceptable levels.

We believe that in order for an item to be acceptable, in the sense used above, it should be intelligible, comprehensible, and --perhaps-- non-irritating to the native speaker.

Just as important as the theorists' views are the views of the teacher of English in the Chilean secondary-school[5] classroom. In a nationwide questionnaire, sent to a sample of one hundred teachers, which we administered in 1972 (the total number of teachers of English in the country is approximately one thousand), ninety-five per cent of the teachers answered that the aims of instruction were not clear, and ninety-two per cent replied that the syllabuses contained too many matters of detail: eighty-five per cent of the teachers maintained that the aims should be "to enable the students to communicate orally at a basic level," in the first place, and "to enable the students to understand the written language," in the second place (Wigdorsky, 1972c).

We are by no means advocating the teaching of

"English as She is Spoke" (Carolino, 1970)[6] or of a simplified form of English: we are merely pointing to the fact that undue insistence on some matters of morphology and phonetics (and even, perhaps, of syntax) may be dysfunctional to the student's natural interest in communicating in a foreign language regardless of the errors they make --and that, anyway, they will continue to make, although in smaller number, no matter how proficient they may become in the foreign language, or even in their native language, for that matter. We disagree, however, with the foreign language teaching approach that advocates for the convenience of teaching a simplified or modified version of the foreign language, a view that was brilliantly expounded by Ogden (1944, 1946, 1947) and I.A. Richards (1943, 1960), and which has been retaken, to some extent, by Haugen (1955), Nostrand (1966), and --more recently-- Christophersen (1973). It is our view that the foreign language teacher need not worry about simplifying the language: the learner will do so, on the bases of his native language, and analogy, all the same.

In the constant struggle for "accuracy" and "fluency" (Charles Fries, 1945) --or, from another point of view, "manipulation" and "communication"-- somehow a balance must be struck or a compromise must be reached (Wigdorsky, 1972a). In other words, as in every field of endeavour, the student must be encouraged (a) to use what little of the foreign language he knows, and (b) to learn more of the foreign language so that he can use it more effectively, and so on, in cyclical fashion; but the fact must be borne in mind that (b) cannot be achieved without the motivation of (a), and that (a) cannot be achieved without the motivation of (b). It is in order to achieve these cyclical and necessarily spiral goals that the person engaged in the foreign language teaching-learning process needs the answers to the questions we asked in our opening lines. The reader will observe that the "spiral" view of "accuracy" and "fluency" advocated in this paragraph contrasts sharply with Fries's view, for whom "accuracy" activities should precede "fluency" activities.

The view outlined above is by no means novel, of course. Already in the fifties --to go back only twenty-seven years-- when "accuracy" was implicitly the goal of foreign language teaching (in the classroom, at least), L.W. Lockhart (1951) wrote,

> For a foreigner bent on complete mastery of English the sky's the limit; a lifetime may be spent in studying the finer points. But the first step . . . is to

> learn enough English to be able to express oneself in it freely and with confidence.

and we are all familiar with Professor David Abercrombie's warning against the dangers of a making a foreigner too familiar (particularly in pronunciation) with the language he is learning (Abercrombie, 1956). More recently, Max Gorosch (1973) has expressed the view that

> Adults are often instructed with a particular aim in view. This makes it possible to apply restrictions concerning the degree of correctness in language performance . . . . To stress the formal elements of an utterance at the cost of the information it conveys is . . . hardly in accordance with the tenet that language is primarily a means of communication between human beings.

In more precise terms, Jakobovits --in answer to the question "What is to know a language?"-- deepens Hymes's distinction between "linguistic competence" and "communicative competence" and maintains that the assumption that the former must precede the latter is groundless, while insisting that "liberated expression" is both possible and desirable (Jakobovits, 1970).

The insistence on "accuracy," or "linguistic competence," to the neglect of what Jakobovits terms "liberated expression" (and which I somewhat loosely connect with "fluency" and "communicative competence") is reflected on the importance given to the "selection" and, particularly, "grading" of foreign language teaching materials, on the assumption that in foreign language learning the strategies are dependent on the teacher rather than on the learner. In this connection, Jain (1974) maintains that

> . . . the learning strategy to reduce to a simpler system seems to be employed by every learner: both the native child and the second language learner have a telegraphic stage . . . the second language learner with varying degrees of adjustment continues to operate it as a reduced system.

and, further on,

> . . . the economy the second language learner readily adopts is for all occurrences . . . with on the whole good communication results.

S. Pit Corder (1974) is even more direct when he maintains that

> We may be able to allow the learner's innate strategies to dictate our own practice and determine our syllabus;

> we may learn to adapt ourselves to his needs rather than impose upon him our preconceptions of how we ought to learn what he ought to learn, and when he ought to learn it.

Selinker (1972), from a different angle, maintains a similar view, while D.A. Wilkins (Council of Europe, 1972), in discussing the student's expected performance in foreign language learning, maintains the need to adopt a variable credit allotment based on the student's attainment of certain defined levels of competence in language use and proposes the concept of "threshold level" of linguistic competence, of a rather elementary type. Lindell (1973), in a comprehensive discussion of foreign language aims, maintains the all-important principle that "the goals can never be expected to remain constant."

In fact, it would be idle to quote further on a view which is, basically, common sense. On the other hand, we are aware of the fact that comprehensibility or intelligibility by natives is not the sole criterion that should dictate the contents of a foreign language syllabus. The ability to understand the spoken language is, for many, a more important aim and, in our view, a more difficult one to achieve, while many educators will maintain that the ability to "read" a foreign language is more urgent and more realistic. Still more seriously, many educators will insist on the formative value of a foreign language (and of every school subject) as basic and, consequently, will not accept the view that we should remain satisfied with mere communication or "liberated expression" as a goal; but, of course, a discussion of the last point would lead us into the complex field of educational philosophy, which transcends the purposes of this rather limited exercise.

We do not pretend, in this work, to answer our basic questions definitely. All that we aspire to is to provide, within our limited universe and our limited corpus of that universe, data and arguments to throw light on the following questions:

1. Can foreign learners reach acceptable degrees of intelligibility[1] and comprehensibility[1] without first eradicating all errors in oral production?
2. Do learners' errors have differences of criticality[3] with respect to intelligibility?
3. Does intelligibility depend uniquely on criticality or on density of errors[7], or both?
4. To what extent is it useful to differentiate

between intelligibility and comprehensibility?

5. What aspects or characteristics of the native language (i.e., English, in this case) facilitate the decoding by natives, even when spoken with errors by foreigners?

6. What types of errors (pronunciation, syntactic, lexical, etc. errors) are most critical to intelligibility and/or comprehensibility?

7. Does formal proficiency testing of foreign languages correlate with measured decoding and understanding by native listeners?

8. Do native speakers make better decodings of imperfect utterances in their own language than do listeners who are not native speakers? Do English and Spanish native speakers --for example-- exhibit different degrees of tolerance of errors made by foreigners?

In order to discover at least tentative answers to these questions we undertook (with an admittedly small sample) the following investigations:

a) Compiling an inventory of errors and vacua in pronunciation, syntax and semantics made by elementary and intermediate learners of English as a foreign language (for logistic reasons, this inventory was restricted to learners whose native language is Spanish, as spoken in Santiago de Chile); and

b) testing native speakers' reactions to different combinations of the deficiencies mentioned above. Functional testing instruments were devised and a sufficiently representative and adequately stratified sample of listeners --"or judges"-- was determined and employed.

Throughout this work we shall use the term "error" rather than the term "mistake," precisely because we believe S. Pit Corder's distinction (1971, 1973, 1974) to be an important one. Like Johansson (1973), however, it is also our belief that in the elementary and intermediate stages of language learning, because of the extreme instability of the learners' "interlect,"[8] there is no way of knowing whether an instance of lack of conformity to the standard being learnt is a mere slip or whether it reflects incomplete competence in a transitional grammar[8] of the foreign language.

We wish to close this introduction with a remark concerning the scope of our numerical data; although our discussions constantly make reference to the results of the application of tests and we frequently provide figures for correlations and levels of significance, we wish to stress the fact that this is a speculative rather than an empirical work. We believe that progress in the human disciplines lies in the realization of the complexity and basic unquantifiability of their fundamental phenomena rather than in emulation of the externals of the "natural" sciences, where truly reliable predictions are possible.

THE SAMPLE: SPEAKERS, LISTENERS AND INSTRUMENTS

Our objectives made it necessary to collect a sample of spontaneous English as spoken by foreigners. The need to control the native language variable as well as practical considerations (e.g. availability of speakers, span of time the listeners were able or willing to be exposed to the sample) forced us to work exclusively with native speakers of Spanish --except for the control groups we shall refer to later; these speakers were dialectically homogeneous, that is, they were all undergraduate students of English (in the same University), born to and users of "standard" Spanish as spoken by young adults in Santiago de Chile.[9]

Bearing in mind the span of time the English-speaking listeners could reasonably be expected to devote to our experiment (most of them were comprehensive school students) we worked --in this main group-- with fifteen speakers, each of them telling, in succession, a story in an average of forty seconds; the listeners were requested to hear all fifteen stories. The instructions to the listeners, the playing of the recorded texts, and their reproduction --either in dictation or re-phrasing-- took forty minutes or more.

In order to obtain spontaneous, unpredicted and unpredictable English, we used as stimuli "silent" comic strips of the kind which are reproduced in Appendix A. We tested these strips for their productivity, first as told in Spanish, thus discarding sixty strips, and then as narrated in English, this resulting in the elimination of fifteen additional strips. We were thus left with twenty-five strips (length in words, $\bar{x} = 51.64$ SD = 14.69 $S_{mean} = 2.84$ $S_p = 4.35$).

"Productivity" was estimated on the bases of ease for reproduction (twenty stories were discarded outright either because the jokes were not clear or because they were of a fundamentally pictorial nature, their linguistic version becoming consequently inaccurate) and total number of words ("tokens") used to tell each story; we thus eliminated all those stories which, in their Spanish version, did not reach seventy words. The remaining forty strips were told in English and we proceeded to discard those whose versions contained fewer than thirty words; the minimum obtained for native speakers of English telling these stories, in one of the control groups, was fifty words.[10]

The Spanish and English versions of the experimental group (stories numbers 1 through 15) correlated[11] at $p = .01$ $r_s = .74$; the corresponding variables for the control group (stories numbers 16 through 21) correlated at $p = .05$ $r_s = .69$, as detailed below,

(A)

Word Tokens

Story No.	English version	Spanish version
1	50	78
2	66	85
3	43	79
4	39	75
5	49	81
6	44	80
7	32	70
8	38	80
9	43	78
10	57	84
11	56	83
12	49	76
13	40	75
14	46	72
15	31	70
$\bar{x}$	45.53	77.73
S.D.	9.11	4.5

(B)

Word Tokens

Story No.	English version	Spanish version
16	67	72
17	50	74
18	60	76
19	57	70
20	78	78
$\bar{x}$	66.83	75.6
S.D.	13.18	4.5

The original one hundred strips were the ones we were able to collect in Chile over a period of eleven months and constitute a haphazard sample (length in

Spanish words $\bar{x} = 51$ S.D. = 16.73 $S_{mean} = 1.67$ at a 95 per cent confidence interval).

Each speaker was asked to study a comic strip for one minute and, immediately afterwards, to tell it in English; the speakers were not given any assistance to interpret nor tell the stories. The recording and playback equipment had the following technical characteristics: frequency response, 60 - 14000 Hz (DIN) and within 6 dB; wow and flutter < .25% (DIN); signal/noise ratio, better than 45 dB (DIN).

The speakers, although all training as teachers of English as a foreign language in the same Chilean University, differed considerably in their degree of proficiency in English as assessed both subjectively, by a panel of evaluators, and objectively by the University of Michigan English Language Proficiency Test (Lado, 1956; Upshur, Palmer and Spaan, 1968, 1971, 1975). The subjective test consisted of eliciting the subjects' oral reponses to visual stimuli in the form of brief "silent comics." A panel of three judges assessed the students' oral production on the basis of pre-established parameters such as number of words per second, ratio of "function" words to "content" words, number of embedding transformations performed, number and type of errors, and number of long pauses. It is mainly a test of "fluency," or "communication." The test was applied diagnostically to volunteer subjects. The University of Michigan English Language Proficiency Test is mainly, though not exclusively, written, primarily geared to assessing the receptive skills; it is used virtually all over the world, in connection with the granting of scholarships or admission to universities in the United States of America, which allowed us to obtain reliable information as to the global ranking of our subjects.

The formal performance of our speakers, in English as a foreign language, is shown in Table 1, below, which provides data for both the subjective and the objective evaluations. It will be observed that subjective and objective scorings correlate quite well ($p = .001$ $r = .973$).

In addition to the fifteen stories told by the Chileans (numbered 1 to 15), one story (story 16) was told by a native speaker of "Received Pronunciation" (RP) fundamentally to detect possible limitations on the part of the listeners; this story (story 16) was incorporated to a group of six stories told by native speakers of Standard English and which were intended to

Table 1

Story Nos.	Formal Subj. scores	Proficiency Obj. scores
1	70	80
2	52	70
3	50	69
4	55	72
5	62	78
6	60	74
7	40	50
8	30	50
9	44	60
10	46	62
11	49	64
12	29	48
13	43	65
14	28	45
15	25	44
$\bar{x}$	45.53	62.07
S.D.	12.98	11.69

Ref. Tables 7, 11.

Table 1

FORMAL PROFICIENCY OF SPEAKERS OF ENGLISH AS A FOREIGN LANGUAGE (CHILEANS) provide the sample with a control reference (Table 4).

The syntactic and lexical characteristics of the stories, as a group, have been summarized in Table 2, "General Linguistic Profile of Each Story: Raw Data", in Table 3, "General Linguistic Profile of Each Story: Ratios," and Table 4, "General Linguistic Profile of Six Control Stories, English Speakers - English Listeners."

A comparison of Tables 3 and 4 reveals that the Chilean speakers of English and the native speakers of English did not differ considerably: while the latter obtained a higher function word/content word ratio, the foreign speakers of English reached higher scores for the type/token, subordinator/token, and coordinator/token ratios. None of these differences proved statistically significant, however, as shown below,

	p	t
type/token ratios	> .20	.767
function word/token ratios	> .20	.492
subordinator/token ratios	> .20	.239
coordinator/token ratios	>.20	1.027

As it was to be expected, both groups differed significantly (p = .001 t = 4.042) only in the total sum of tokens (TST) used to tell their stories.

Table 2

Story	Total words (tokens)	Total content words	Different words (types)	Coordinators, number	Subordinators, number	Descriptive attributive, number	Adjectives predicat., number
1	50	20	35	5	3	-	-
2	66	25	41	1	4	2	1
3	43	16	32	4	-	1	-
4	39	14	30	3	1	-	-
5	49	20	35	2	2	-	-
6	44	22	31	2	1	-	-
7	32	14	23	4	-	1	1
8	38	14	23	3	-	-	-
9	43	16	31	1	3	-	-
10	57	22	38	4	4	3	1
11	56	26	34	1	-	9	-
12	49	20	29	4	2	1	2
13	40	19	35	4	1	1	-
14	46	18	31	4	2	1	1
15	31	14	21	3	1	-	-
$\bar{x}$	45.5	18.7	31.3	3.0	1.6	1.3	0.4
S.D.	9.1	3.9	5.4	1.3	1.3	2.2	0.6

Notes:

1. Time was a constant (30 - 60 seconds per story).
2. Words classified as "content words" or "function words" along the lines suggested by Charles Fries (1952), with practical modifications.

Ref. Tables 3, 4.

Table 2

GENERAL LINGUISTIC PROFILE OF EACH STORY: RAW DATA

Table 3

Story	TTR	FTR	STR	CTR	TST
1	.70	.60	.60	.10	50
2	.62	.62	.61	.15	66
3	.74	.63	0	.92	43
4	.76	.64	.26	.77	39
5	.71	.59	.41	.41	49
6	.70	.50	.23	.45	44
7	.72	.56	0	1.25	32
8	.60	.63	0	.79	38
9	.72	.63	.70	.23	43
10	.67	.61	.70	.70	57
11	.61	.54	0	.18	56
12	.58	.59	.41	.82	49
13	.88	.52	.25	1.00	40
14	.67	.61	.43	.87	46
15	.68	.55	.32	.97	31
$\bar{x}$	.69	.59	.33	.64	45.53
S.D.	.07	.043	.25	.35	.09

TTR type/token ratio
FTR function word/token ratio
STR subordinator/token ratio
CTR coordinator/token ratio
TST total sum of tokens

Ref. Tables 2, 4.

Table 3

GENERAL LINGUISTIC PROFILE OF EACH STORY: RATIOS

It is not surprising --in our view-- that the Chileans' and the English speakers' TTR, FTR, STR and CTR should not differ significantly, as they were adults, most of them did manage to communicate, and Spanish syntax and English syntax present more similarities than differences --a point which we will briefly discuss later.

The correlations for the figures corresponding to the type/token ratio (TTR), the function word/token ratio (FTR), the subordinator/token ratio (STR), the coordinator/token ratio (CTR), and the total sum of tokens (TST) --in the case of our Chilean speakers of English-- are shown below,

r_s

	TTR	FTR	STR	CTR	TST
TTR	---	.044	-.055	.292	-.434
FTR	> .10	---	.274	-.161	.10
STR	> .10	>.10	---	-.711	.554
CTR	> .10	>.10	= .01	---	-.696
TST	> .10	>.10	= .05	=.01	---

p

It is interesting to observe that TTR and FTR proved neither predicted nor predictable by each other nor by STR, CTR, or TST. That was not the case with STR, which displayed a high negative correlation with CTR and an acceptable positive correlation with TST, and with CTR which correlated negatively with both STR and TST; this seems to confirm the well-known view that excessive conjoining is an indicator of poor syntax and the suspicion that subordination is an index of the opposite situation.

As shown below, TTR and TST do not correlate with either intelligibility or comprehensibility, while FTR correlates positively with intelligibility (at least, apparently so) and CTR does so negatively; additionally, it is likely that a larger sample would have shown a negative correlation between CTR and comprehensibility.

	Comprehensibility		Intelligibility	
	p	r_s	p	r_s
TTR	> .10	.040	> .10	.015
FTR	> .10	-.071	= .10	.504
STR	> .10	.011	> .10	.139
CTR	> .10	-.206	= .05	-.535
TST	> .10	.282	> .10	.173

Although not statistically significant, it is interesting to observe the native speakers' lower TTR; actually, high semantic "compression" seems to be typical of foreigners' English, as the speakers somehow feel that they should waste no time on repetitions; this is also reflected, in our sample, in the fact that our speakers seldom or never used such null-information words as "starters" and "hesitation fillers" (which, of course, are as common in Spanish as they are in English), thus probably becoming more vulnerable to "noise."

That repetition compensates for "noise" is an established fact; "starters" and "hesitation fillers" would seem to have a similar function (among others), inasmuch as the former ensures the perception of the first word in the message (something that appears to be of importance in the decoding of a message) and the latter gives the listener more time to formulate provisional short-term hypotheses of what is being said --which is probably important in the decoding of ill-formed messages.

On the other hand, the speed of speech employed by all sixteen speakers is well below average, which partly explains the relatively high intelligibility level for our foreigners; while English is spoken at an average of 148.5 words per minute and Spanish at an average of 131.7 words per minute, speed in surface morphemes being roughly the same for both languages, the Spanish word being --on the average-- more complex and longer than the English word[12], the average speed in our sample was only 45.53 words per minute. That speed is relevant to foreign language comprehensibility has been reported by linguists working in other fields; thus Upshur (1971), in connection with testing, expresses "We discovered, for most tasks, students with only a limited command of English could communicate perfectly well if they were given enough time."

Our choice of stories prompted by silent comics was the result of two apparently contradictory requirements for a test of this kind: on the one hand, to avoid dictating isolated sentences which, out of context, are likely to be ambiguous, vague, or even meaningless (and, consequently, inappropriate to our purposes); on the other hand, to strive to keep "inferencing" (Carton 1971) [sic.] under control, as it is largely provided by context rather than by the linguistic units themselves, thus skewing predictions on intelligibility. In this respect, we disagree with the technique used by Bansel (1966) in a research work whose aims largely resemble our own, and rather think along the lines of Nickel (1972) --and other applied linguists-- in the sense that ". . . essay writing. . .

as well as oral conversations may show more interference than all other types of testing." Indirectly, Selinker (1972) supports this kind of testing for communicative competence, rather than for mere linguistic competence, when he discusses the chances for "fossilizations" to recur and states, in discussing the concept of "realizational units" that ". . . responses concerning a topic . . . affected very drastically the surface concatenation of the above mentioned strings."

Above all, our test was inspired in Newmark and Reibel's remark (1968) that "situational rather than grammatical cohesion is what is necessary and sufficient for language learning to take place." Upshur (1971), too, puts it quite clearly when he maintains that there are "two problems in 'productive testing': the intentions of the examinees have to be determined and the examiner must be unaware of what the examinee intends."

On the other hand, it must be emphasized that our fifteen stories, all of them humorous, proscribed any possibility of the contents being guessed by the listeners. We thus believe we have neutralized, at least in part, the effect of context on their comprehensibility and, above all, their intelligibility.

These stories were chosen because humour is largely based on the unpredictable or unexpected, the unpredictable nature of the plots being ascertained by means of a pre-test. Twenty Spanish-speaking undergraduates were asked to listen to only the first half of each story in both the experimental and control groups (Nos. 1 - 15 and 16 - 21) and to provide for the other half; the right guesses were, respectively, $\overline{x} = 2.0$ S.D. = .63 and $\overline{x} = 2.33$ S.D. = .74 ($p = .001$ $t = 11.37$).

The effect of context upon intelligibility and comprehensibility has also been minimized --of course-- by the absolute absence of visual clues. Thus Valdman (1970), discussing comprehension of foreigners, maintains that "the inaccurately pronounced and ungrammatical sentences that result from natural second languages do not usually interfere with face-to-face communication." Actually, the absence of the face-to-face element --because of the use of audio tapes-- introduces an element of artificiality, difficult to avoid with the means at our disposal, into our experimental design.

Our recorded stories were played to three different groups of listeners, or "judges":

1. The "dictation" group

The "judges" in this group, twelve in number, were speakers of standard London English, fifth-year comprehensive school students, none of them having taken courses in Spanish, none of them familiar with any foreign language. They were requested to take the stories down in dictation, to which effect sufficiently long pauses were introduced in normal places of the recorded texts (the "expanded" tape) so that the utterances, in addition to being semantically unitary, did not exceed eight words in length, in accordance with the findings about memory span by Lado (1964), Wigdorsky (1969, 1971), and others.

Because of the fact that these "judges" were requested merely to write down what they heard, or thought they heard, and also because the pauses introduced allowed only for immediate writing (barring, we believe, the formulation of alternative "readings"), it is our opinion that this test is mainly concerned with intelligibility, or decoding, to the virtual exclusion of comprehension proper.

2. The "dictation-dictation" group

The panel of judges was similar to the one described above, and the procedure was identical, except that the "judges" were asked to take down the stories in dictation twice, each story being played twice in immediate succession. This test was only ancillary and its sole purpose was to investigate the effect of repetition on intelligibility.

3. The "free recall" group

The "judges" in this group (twelve in number) were requested to listen to a whole story, as originally recorded, without extra pauses, and then to write down in their own words what they had understood in each case. Sufficient time to do this was left between one story and the following one. As in the case of the preceding groups, these "judges" were native speakers of standard London English, fifth-year comprehensive school students, none of them having taken a course in Spanish and none of them familiar with any foreign language. It is apparent that, because of inference having been allowed to play a part at this stage of the experiment, this test was mainly concerned with what we have here termed "comprehensibility."

Perhaps it is appropriate, at this stage, to comment briefly on dictation, "free recall" and replies to questions as tests of intelligibility and/or comprehension. Anticipating to some extent definitions we shall discuss later, what distinguishes "comprehension" of a text from its mere "decoding" --that is, from the point of view of properties of the text itself, "comprehensibility" from "intelligibility"-- is the presence, in the first case, of "inferencing" or hypothetical anticipations of the intended message. It is quite likely that "inferencing" (Carton, 1971) is, to some extent, always present in linguistic communication, no matter how brief the message or how short the time interval left between succesive signs or symbols; this follows from the belief --to which we subscribe-- in the active rather than passive nature of language reception. It is apparent, however, that inferencing can be significantly reduced in a test, such as fast dictation, which diminishes the time left for the hearer to hypothesize alternative "readings." Important information on the usefulness of dictation for our purposes was provided by Brodsky (1972). On the other hand, it was our belief that there need not always be complete correlation between decoding and comprehension, this being our main reason for the application of the "free recall" test. We had originally thought of fusing the "dictation" and the "free recall" groups into one, by having the same judges take the texts down in dictation and subsequently answer strategical questions on such texts --or vice versa; we soon discarded such procedure, however, as one result would have vitiated the other.

Because our aims were really different, our procedures differed from those employed by Olsson (1973), who first asked her "judges" to transform the sentences they received and then asked them to correct errors; we did this to some extent, too, but in connection with grammaticality, acceptability and the relation of each with intelligibility.

Our choice of linguistically unsophisticated judges, on the other hand, hardly needs justification. Gorosch (1973) puts it quite clearly when he states that ". . . there is a clear-cut difference between sophisticated evaluators and non-teachers, in that the former tend to have . . . 'fixation areas'." That is, foreign language teachers (and, in general, people who have gone through routine foreign language courses) have preconceived notions as to what errors are more important and what errors are less important (very few, in their opinion!). Upshur and Palmer (1974) say very much the same when they maintain that ". . . naïve, monolingual listeners do not differentiate aspects of speech categorized by the language teaching profession." Particularly relevant is, we believe, Nickel's remark (1973) that there has never been general agreement as to what errors are elementary and which are non-elementary and that ". . . if such agreement is one day reached, native speakers should have a decisive say in it" --a remark with which we may agree only partially, first, because the status of errors should partially be decided by the aims of instruction and, secondly, because --faithful to the structuralist position, in this respect-- "emic" items may be hypothesized as more important than "etic" units.

In addition to the three groups of "judges" already mentioned, we found it necessary to establish the following groups, either as control groups or groups whose task was to provide supplementary information:

4. "Native RP speakers -- native RP listeners: Dictation"

Six stories, similar to the ones so far outlined[13], properly "expanded" (i.e., with synthetic pauses to allow for the taking of dictation), were told and recorded by six native RP speakers (each speaker told one story) and listened to by ten RP speakers of equivalent educational background (first-year students at the East Anglia Technical College or at the University of Essex), none of them sophisticated in languages. This panel served as a control group and provided one of the standards with which to compare the level of intelligibility achieved by the foreign speakers. The lexical and syntactic characteristics of the texts told by this group are summarized in Table 4, below. The texts of these stories will be found in Appendix B.

All six stories, dictated by and to native speakers of English, exhibit an average intelligibility of seventy-nine per cent, which motivated our relatively arbitrary intelligibility threshold at seventy-plus per cent of the text or, in the case of individualized errors, at seventy-plus per cent of the "judges" in the panel.

The reader will observe that the average comprehensibility obtained was 86.7 per cent, a figure significantly higher than the one obtained for average intelligibility. ($p = .05$ $t = 2.646$) Intelligibility was estimated on the basis of the percentage of word tokens taken down in dictation; the rating criterion for

Table 4

Story No.	TTR	FTR	STR	CTR	TST	Intelligib. percentage	Comprehens. percentage
16	.58	.69	.45	.74	67	87	91
17	.60	.70	.20	.60	50	85	91
18	.81	.50	.50	.33	60	67	82
19	.73	.61	.18	.35	57	74	95
20	.58	.63	.26	.64	78	84	79
21	.66	.61	.22	.22	89	77	82
$\bar{x}$	.66	.62	.30	.48	66.83	79.0	86.7
S.D.	.085	.066	.13	.19	13.18	7.05	5.91

TTR	type/token ratio
FTR	function word/token ratio
STR	subordinator/token ratio
CTR	coordinator/token ratio
TST	total sum of tokens

Ref. Tables 2, 3, 5, 7.

Table 4

GENERAL LINGUISTIC PROFILE OF SIX CONTROL STORIES, ENGLISH SPEAKERS -- ENGLISH LISTENERS. ALSO, PERCENTAGES OF INTELLIGIBILITY AND COMPREHENSIBILITY.

comprehensibility was the percentage of "information units" reproduced by the listener (roughly speaking, we assigned one "information unit" per non-anaphoric non-predictable lexical unit, to which we added information on mood and modality --that is, on the interpersonal function of the utterance).

5. Native RP speakers -- native RP listeners: Free recall

The same six stories described in the previous section, recorded with no "expansions," were played to a panel of six judges, who were asked to write down what they had understood after each story. As in the previous group, the participants were native RP speakers, first year East Anglia Technical College or University of Essex students, none of them sophisticated in languages. This test provided a control group and a comparison standard for the degree of "comprehensibility" achieved by our foreign speakers. The average degree of comprehensibility obtained for this test was, as already mentioned, 86.7 per cent of the texts. On the basis of this average, we established seventy-plus per cent of the text (or seventy-plus per cent of the "judges," in the case of individualized errors) as our relatively arbitrary comprehensibility threshold. In order to determine the amount of comprehension achieved by each judge, the stories were broken into from seven to ten "information units."

6. Foreign speakers -- foreign listeners: Dictation and "free recall."

The stories told by our fifteen Chileans were played to ten foreign speakers (two Japanese speakers, two Egyptian Arabic speakers, one native Hebrew speaker, one Russian speaker, one Malayan speaker, one Mandarin speaker, one Urdu speaker and one Hindi speaker), all of them university graduates in the field of the "natural" sciences and quite proficient in RP English. It will be observed that none of these judges was a native speaker of a Germanic or a Romance language, nor were they familiar with any language in those groups, with the exception of English. We thus expected to control the intervention of linguistic transfer, either positive or negative (of course, transfer is never completely neutralized).

These judges were requested to perform two tasks. First, to take down in dictation all fifteen stories, thus paralleling the "intelligibility" test taken by the English-speaking judges; and, secondly, to listen to each story and write down their own version of what they had heard, thus paralleling the "comprehensibility" test taken by the English-speaking judges.

The objective of these exercises was to test the hypothesis that familiarity with a language increases our capacity to understand it when rendered ungrammatically. This hypothesis is implicit in Upshur and Palmer (1968) when they maintain that

> Mature native speakers of a language possess a knowledge of the sequential probabilities among linguistic units . . . . The hearers can be assumed to have pragmatic knowledge of the use of English, so that given any conceptual event they would have fairly regular expectations for linguistic events to ensue . . . . One may consider a monologue, such as those produced in the interviews of this study, as a dynamic process in which a continuous series of linguistic events allows the listener to construct a continuously developing concept.

The principle that linguistic messages are largely predictable is, of course, quite classical but we felt the need to relate it to the present study as, we shall see later, it is precisely this principle, basic to redundancy, which permits decoding and understanding in unfavourable circumstances, such as the ones brought about by speakers who are not satisfactorily proficient.

Table 5 summarizes the data provided by this test. A comparison of these data with those in Table 7 shows that, as a group, the English-speaking listeners scored higher than the non English-speaking listeners, both in comprehensibility and intelligibility; as we may reasonably expect better performance by the former, the differences are significant at $p = .05$ in both cases ($U = 92.5$ and $U = 85$ for comprehensibility and intelligibility[14], respectively).

On the other hand, the scores for intelligibility and comprehensibility for this group proved non-correlated ($p = .10$ $r = .047$ and $r_s = .083$); in other words, it is not possible to predict one on the basis of the other; as we shall see later; this was also the case with the experimental group.

7. Tests of contrasted grammaticality, acceptability, and intelligibility: English (RP)

It is legitimate --we believe-- to assume that intelligibility thresholds are somehow linked to tolerance of errors or mistakes by foreign as well as native speakers and, consequently, to grammaticality and acceptability[4].

Table 5

Story	Comprehensibility, $\bar{x}$ %	Intelligibility, $\bar{x}$ %
1	77	76
2	70	75
3	63	70
4	58	68
5	88	50
6	60	72
7	80	60
8	79	71
9	77	80
10	79	62
11	80	68
12	12	12
13	64	58
14	71	62
15	54	60
$\bar{x}$	67.5	62.9
S.D.	17.58	15.62

Ref. Tables 3, 4, 7.

Table 5

COMPREHENSIBILITY AND INTELLIGIBILITY:
SPANISH SPEAKERS -- NON-ENGLISH LISTENERS

We therefore designed a test, relevant only to the objectives of our research, consisting of thirty-one sentences containing syntactic and semantic (mainly lexical) errors which, in pre-tests, had proved dubious as to grammaticality or acceptability. These sentences were presented in printed form to the first two panels of judges and orally to a third panel. All the judges were native speakers of English, first-year students of the natural sciences at either the East Anglia Technical College or at the University of Essex, none of them linguistically sophisticated.

The first panel, consisting of twelve judges, were asked to correct any errors in the sentences or to rewrite them completely (compare with M. Olsson's procedure, 1973). It had to be left to us to decide whether the corrections or rewritings which were made were relevant to syntax, style, or both. The apparently simpler procedure of asking the native listeners merely to report on the grammaticality or acceptability of the sentences they read or heard was, of course, pointless because of its unreliability. We entirely agree with Thorne's view (1971) that "subjects rarely report ungrammatical sentences and frequently hear ill-formed sentences as well-formed."

The purpose of this section of the test was partly to establish the status of constructions we had provisionally considered grammatical or ungrammatical. As foreigners to English ourselves, the results of this test were of particular interest to us, our intuitions of English being even less reliable than the native speaker's. It did serve this purpose to some extent (our categorizations of errors almost invariably proved right) but its main use was to reinforce the criticism --voiced, amongst others, by Ilse Lehiste (1971) and Judith Greene (1972)-- that basing oneself on basic intuition is not always reliable.

The second panel, consisting of fourteen judges, were requested to report on the acceptance of the sentences; to this effect, they were asked to state for each sentence whether it was generated by a speaker of their own dialect, by a speaker of another dialect of English, or by a foreigner; because of the judges' unsophistication in language matters, sentences marked either as generated by foreigners or speakers of other dialects of English were interpreted as not acceptable to the judge. The results obtained with this group, as it was to be expected, were even more scattered than those for grammaticality.

The third and last panel were asked to take down in dictation all thirty-one sentences, read by a speaker of RP; this was expected to reflect the judges' degree of ability to decode the sentences.

The texts of the sentences, together with the results obtained for all three purposes (grammaticality, acceptability, and intelligibility) and the possible correlations between them are displayed and explored in the corresponding section ("Grammaticality, Acceptability, and Intelligibility") and, particularly, in Table 12.

8. Tests of contrasted grammaticality, acceptability, and intelligibility: Spanish (Santiago de Chile)

Tests of contrasted grammaticality, acceptability and intelligibility, along the lines of the ones described in the previous section but relevant to Santiago de Chile Spanish, were administered to Chilean judges who, like their English counterparts, were first-year university students of the natural sciences, none of them sophisticated in languages. The purpose of this test was to compare the degrees of tolerance of deviance between native speakers of both languages. As it was to be expected, we found no significant differences between both groups where tolerance of deviances was concerned[15].

The texts of the sentences, together with the results obtained, are displayed and explored in the corresponding section, and particularly in Table 12.

9. Confirmation tests

We soon realized that, with very few exceptions (mostly lexical), the parts of a text which failed to be decoded by the native RP "judges" contained from two to five errors. This made it necessary for us to investigate which of the converging errors was or were critical to intelligibility or comprehensibility. We consequently devised the following battery of tests:

(a) The "isolated error" test, in four tapes with forty-eight utterances each, so that each sentence or phrase contained just one error of pronunciation, syntax or semantics. To this end, we had to construct otherwise well-formed and well-pronounced utterances and deliberately introduce in them the particular error we wished to test. These tapes were played to four different panels of judges, each panel consisting of ten judges, all of them native RP speakers with a university background, though none of them sophisticated in languages.

(b) The "syntactic-semantic" test, containing errors of syntax or semantics alone. This test consisted of forty-eight utterances with such syntactic or semantic errors as made by our Chilean speakers, but this time read by an RP speaker of flawless diction, thus eliminating the possibility of pronunciation errors to interfere with the syntactic or the semantic errors. As in the case of the "isolated error" test, this tape was played to a panel of ten judges with the linguistic and social characteristics described above.

(c) The "pronunciation error" test, consisting of forty-eight utterances containing, as the label implies, only such pronunciation errors as produced by our Chilean speakers. In order to construct this test we proceeded in a complementary manner to the procedure for the "syntactic-semantic" test, namely, we read well-formed sentences with such features of foreign accent relevant to our purposes. The purpose of this test was to supplement the "syntactic-semantic" test, but we found it of limited application and usefulness.

The results obtained with these tests are displayed and discussed in the section dealing with the relative criticality of errors. Nevertheless, we may anticipate that the results obtained confirmed what we had suspected all the time, namely, that only exceptionally are single errors critical to intelligibility or comprehensibility, a suspicion which had been implicitly foretold --amongst many others-- by Spolsky (1968) and Upshur (1968, 1971).

The procedures and instruments employed in this research have been organized along the lines of the diagram on the following page.

Summarizing, these procedures and tests have been

Fig. 1

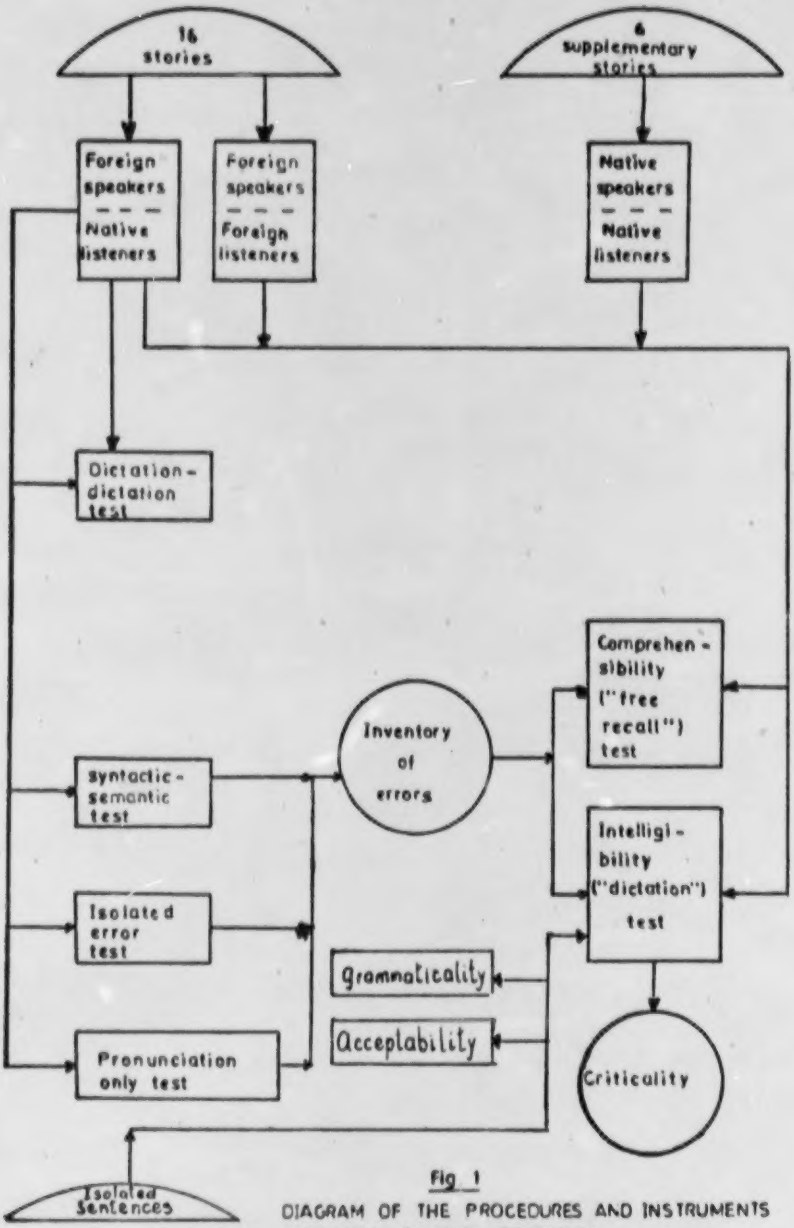

16 stories
6 supplementary stories
Foreign speakers --- Native listeners
Foreign speakers --- Foreign listeners
Native speakers --- Native listeners
Dictation-dictation test
Comprehensibility ("free recall") test
syntactic-semantic test
Inventory of errors
Intelligibility ("dictation") test
Isolated error test
Grammaticality
Acceptability
Pronunciation only test
Criticality
Isolated Sentences

Fig 1
DIAGRAM OF THE PROCEDURES AND INSTRUMENTS EMPLOYED IN THIS RESEARCH.

designed with a view to establishing the effect of learners' errors in both the decoding and understanding of English by native speakers of English.

INTELLIGIBILITY AND COMPREHENSIBILITY

Our research suggests that intelligibility (= degree of being easily decoded) and comprehensibility (= degree of being easily understood) are qualities of the speakers and/or their messages which, though hard to differentiate, are best treated independently. The difficulty in differentiating one from the other arises from the fact that both are, in Wilga River's terminology (1971) acts of construction rather than of mere reception[16], and that both are determined by factors, linguistic and extra- or co-linguistic, which largely overlap. The impression that the difference is merely in amount rather than in kind seems to be offset by the rather modest correlation between both, as shown by our tests, and by the theoretical assumption that, although both are influenced by sets of variables which --to a large extent-- intersect, the incidence or "load" of these factors or variables seems to be quite different in each case, i.e., in intelligibility and in comprehensibility.

Significantly, dictionary definitions of intelligibility usually combine both meanings which we here wish to keep separate; for the _Dictionaire de Linguistique_ (Dubois et al., 1973),

> On appelle _intelligibilité_ l'état d'un enoncé qui peut être entendu distinctement et compris facilement.

and, similarly, for the latest (1970) edition of the _Diccionario de la Real Academia Española_,

> Inteligible: (1) Que puede ser entendido; (2) que se oye clara y distintamente.

that is, "(1) which can be understood, and (2) which can be heard clearly and distinctly." We roughly keep meaning (2) for "intelligibility" and reserve meaning (1) for "comprehensibility."

"Comprehensibility" embraces both _entender_ and _comprender_, as defined by Roque Barcia (1944) in one of the most insightful, though old-fashioned and reduced, dictionaries of synonyms ever written,

> Se _entiende_ un hecho, una relación, una palabra. Se _comprende_ una serie, un sistema, un plan . . . . Se _comprende_ significa que se penetra en su intención, sus tendencias. _Entendemos_ por medio del análisis. _Comprendemos_ abrazando la síntesis.

That is, if we inaccurately translate *entender* as "understand" and *comprender* as "comprehend,"

> We *understand* a fact, a relation, a word. We *comprehend* a series, a system, a plan . . . . To *comprehend* means to penetrate intentions and tendencies. We *understand* through analysis. We *comprehend* by means of synthesis.

J. Carroll (1972) puts it in technical terms when he states that

> Comprehension or understanding are parts of an individual's cognitive structure: This structure is retrospective and projective.

The trouble with this last definition is that what we have here termed "intelligibility" (or, if we think in terms of processes, "decoding") is also part of an individual's cognitive structure, though --in this case-- the interpretative hypotheses of the meaning or meanings intended are of the short-term kind rather than of the long-term kind, as in the case of what we have here termed "comprehensibility" (or, if we think in terms of processes, "comprehension"). This seems to be in accordance with all four models of speech perception (Stevens and Halle's, Fant's, Morton and Broadbent's, and Haskins's) compared and discussed by Peter MacNeilage (1971)[17].

In other words, "comprehensibility" combines "intelligibility" (decoding), inferencing[18], and interpretation by the listener, that is, with a wide choice of long-term hypotheses for the meaning of what is being said. "Intelligibility," on the other hand, stays within the field of a limited choice of short-term hypotheses. The word "combine," because of its connotation of "mutual assistance among items," is important here: we deliberately avoided using such terms as "imply," "entail," or "presuppose" because comprehension (i.e., its comprehensibility) of a text proved, in our experiment, invariably higher than its mere decoding (i.e., intelligibility). The reason for this is that long-term hypotheses allow for a larger number of anticipations of the intended message than do short-term hypotheses.

Operationally, now, "intelligibility" and "comprehensibility" are what is measured respectively by the "dictation" test and the "free recall" test --very much as, operationally, intelligence is what is measured by a specific "intelligence" test, regardless of the conceptual definitions. As employed in this work, intelligibility and comprehensibility have the status of hypothetical constructs.

A view of the factors affecting "intelligibility" should certainly allow us to sharpen our concepts.

Degrees of "intelligibility" are to be found not only in bilingual or bidialectal situations but also in monodialectal situations, because of factors such as accuracy of articulation, sharpness of ear, syntactic (e.g., number of transformations) and semantic complexity of the message, and --extra-linguistically-- the speaker's and the listener's knowledge of how to use language (Bernstein, 1971; Halliday, 1973, 1975; Hymes, 1967, 1971), their social and educational backgrounds, physical noise conditions, etc. (Wigdorsky, 1971). Hence our proposal of a "scale of intelligibility" alongside the well-discussed scales of grammaticality, acceptability, appropriateness, and others.

In situations more general than the rather theoretical monodialectal situation and with specific reference to our problem, we can list the following linguistic factors or variables of intelligibility:

1. The degree of grammatical divergence between the speaker's language (or dialect)[19] and the listener's language (or dialect, diatopic and/or diastratic).

The existence of features and constraints common to English and Spanish (and, indeed, in varying degrees, between any two pairs of languages, if we subscribe to the belief in the existence of linguistic universals) makes some degree of intelligibility possible even when speaker and listener do not use the same language. However, as it is well known, partially common features (e.g., items being "emic" in one language but "etic" in the other language, the existence of "false cognates," or differences in "polarity" or "marking") usually present major decoding and comprehension problems; there are, of course, many such items between Spanish and English, but their scant appearance in our sample (partly because Chilean students of English have been traditionally advised against the use of cognates) hardly justifies generalizations.

On the other hand, the relative concentration of types of errors suggests convergence or divergence in particular aspects, or subsystems, of the language being dealt with. In this respect, error analyses provide indirect evidence of the degree of similarity between languages or, more accurately, between parts of languages.

We have already pressed the view that English and

Spanish do not differ significantly, either in semantics or syntax, and that contrastive studies --Stockwell, Martin, and Bowen's (1965), to cite just one-- are usually at pains to find really dramatic differences between both languages.

2. The degree of the listener's knowledge of and experience with related languages.

We have here made the assumption that a native speaker of English who knows Portuguese or Italian --for example-- will have less difficulty in decoding and understanding Spanish than his fellow native speaker who does not know such languages. In other words, we adhere to the belief in the transfer of second or foreign languages. It is our opinion that we can justify this assumption on practical grounds and, more interestingly, on the data and insights provided by Weinreich (1953), Selinker (1971), Rivers (1971), Burt and Kiparsky (1974), Gradman (1974), Di Pietro (1971), and many others.

It was precisely to neutralize this factor that we chose our native RP listeners --or "judges"-- only among subjects who were not linguistically sophisticated and, in the case of the foreign-speaking "judges," among subjects whose native language was not directly related with English or Spanish and who were not familiar with any such related languages.

3. In relation with factors (1) and (2), above, and also in relation with native language use ("performance of one's competence"), the listener's knowledge of how to make use of what he knows, an aspect which has been dealt with in detail by Halliday (1975), Hymes (1971), Spolsky (1968b), and others.

As in the previous case, the choice of linguistically non-sophisticated native RP listeners was a strategy to neutralize this factor[20].

4. The degree of redundancy, both syntactic and semantic, of the message.

By "syntactic redundancy" we refer here to the ratio between what Petr Beckmann (1971) calls "check system" --plural endings, past tense endings, proclitics, etc.-- and the total number of signals in the message, a ratio which --according to him-- varies significantly from language to language, so that English, for example, should be twice as "efficient" (i.e., more informative per syllable and, consequently, less resistant to ambiguity) than Russian[21]. By "semantic redundancy" we refer to dispensable repetitions of predicational "clusters" (Leech, 1974) as, for example, when someone says, "She escaped and ran away" or --partially redundant, as in our story 16-- "She was being looked for by the police and had a price on her head." We are not prepared, at this point, to compare the "coding efficiency[21]" or "syntactic redundancy" of English and Spanish, although it is our impression that any differences would not be nearly as great as the one hypothesized by Beckmann for English and Russian. That English is "structurally redundant" at an operational level was confirmed by the fact that our speakers were, in spite of their linguistic deficiencies, largely understood by the RP judges.

What we did find, as we reported earlier in this essay, were significant differences in the amount of "semantic redundancy" by native and foreign speakers of English, namely, that the latter seldom repeat or use "starters" and "hesitation fillers," a characteristic of their interlects which, as explained earlier in this work, decreases their intelligibility and comprehensibility.

On the other hand, further proof that redundancy is relevant to learners' interlects is provided by the finding, reported by Spolsky (1968b), that they have more difficulty than native speakers in understanding under conditions of noise.

5. Instabilities in the subsystems of the listener's dialect and language.

Language is in constant flow --or, to put it more technically, in Coseriu's terms (1962), it consists of an overlapping of diachronies-- and the native speaker is, to some extent, aware of change and of equivalences (diachronic, diastratic and diatopic). Thus the RP speaker knows that his [ʌ] is partially equivalent to Northern English [u] through words such as "love" and "but," and that his [əː] is partially equivalent to Standard American [ər] or Edinburgh Scottish English [əɾ] through such words as "bird" and "heard," while --syntactically and semantically-- a Spanish speaker knows that there is a certain equivalence between the subjunctive and the conditional, or between the "present perfect" and the "indefinite past," although he himself may and (in present-day Spanish) need not use the first members of each pair mentioned; thus --as it has been repeated since, at least, de Saussure-- we "know" much more of our language than we actually use --and the more experienced or the more educated the larger our latent knowledge in this sense.

Latent knowledge of his native language partly accounts for the native speaker's ability to decode imperfect language (e.g., one which has suffered interference), as items --sounds, prosodic features, syntactic units, constructions, semantic features, and so on-- which are apparently alien to a language or, more precisely, to a dialect of a language, need not necessarily be so because of the existence of alternative, potential items to the one normally used in the speaker's dialect(s).

It is also because of the native speaker's ability to interpret equivalent items in other native dialects that the paradox results that foreigners' interlects of a high degree of divergence from the native dialect may be more "efficient" (i.e., better understood, both linguistically and extra-linguistically) than foreigners' dialects which approximate native dialect(s) to a high degree, particularly in pronunciation. This seems to be the case especially between closely related languages, as English and Spanish, where one-to-one apparent translation equivalents are abundant; thus, in a case where Spanish overtly shows the "double predicate" but English does not,

* I borrowed a pound from Peter but he refused

will be readily understood "I asked Peter to lend me a pound" by native speakers of English if uttered with poor pronunciation, but it will certainly puzzle them, because of its contradictory nature[22], if the pronunciation is near-native.

6. Amount of contextual clues, both linguistic and situational.

The importance of context is implicit in the assertion, made by most linguistics and philosophers, that language is symbolic[23]. Linguistic context narrows down the possible interpretations or readings of a message as the utterance progresses (Miller, 1951; Slama-Cazacu, 1970), which accounts for the fact that if the first non-anaphoric content word of an utterance is missed by the listener, the chances of decoding the message become quite low --a situation which appeared several times when the "judges" were asked to listen to our less proficient speakers.

Extra-linguistic context limits in a wider sense the possible interpretations of a message, namely, it makes some readings irrelevant or anomalous. The important thing to bear in mind in this connection, and particularly in an experiment of the kind undertaken here, is that to a large extent social or transactional operations are stereotyped, which makes language use relatively redundant in many cases, particularly between participants who share the same kind of culture. It was to avoid the possibility for extra-linguistic context to facilitate or decide decoding (Oller, 1970) that we chose comic strips of a humorous nature (that is, unexpectable or non-predictable) to stimulate our speakers. The choice of strips was largely decided, precisely, on their non-predictability by the listener.

7. Speed with which the strings are uttered.

In a previous, unpublished research work (please see Appendix F) we were able to hypothesize, after the analysis of relatively large samples, average speed figures for both English and Spanish. Thus, on the average, English and Spanish were uttered at the following speeds,

	Syllables per minute	Morphemes per minute	Words per minute
English	197.3	176.0	148.5
Spanish	249.6	170.7	131.7

It is unlikely that, in the absence of concomitant factors, fast speech affects intelligibility negatively: the adaptation to different speeds seems to be part of our competence as native speaker-listeners, and we do not normally have any difficulty when we decode speakers of our own dialect. But the situation is not necessarily the same when we listen to speakers of other dialects of our native language, as prosodic features -- mainly pitch and rhythm-- generally vary from one dialect to another and, in addition to this, the phonological processes play a larger role in rapid, "allegro" or "allegretto" speech than they do in slow, "largo" speech (Harris, 1969; Chomsky and Halle, 1968). Thus, for example, fast Cuban Spanish is normally more difficult than slow Cuban Spanish for Chilean-Spanish listeners to decode: when Cubans speak slowly we have only different prosodic features to overcome; when they speak fast, however, we must overcome both the prosodic differences and the results of the operation of most of the phonological processes active in Spanish. Something similar can be expected to occur when natives listen to foreigners' interlects; if a foreigner is not quite proficient in English he will probably have problems with rhythm and intonation; if, in addition to this, he speaks English fast, he will most likely apply to English the same processes that he applies in his native language.

Similarly --we believe-- when foreigners listen to natives; this is one of the reasons why "hearing" a foreign language is --contrary to popular belief-- generally more difficult than "speaking" it, "largo" forms usually being the varieties formally taught, while "allegro" forms are the ones used by native speakers in most situations. Our foreign speakers were very slow in relative terms (45.53 words per minute, on the average), the speed variable thus becoming neutralized for the purposes of the present research --if anything, our "judges" having an advantage in this respect. We dare make the impressionistic remark, nevertheless, that abrupt increases in the speed of learners' utterances does seem to impair intelligibility, which does not appear to be the case with native speakers, who generally use speed as a rhetorical device. As pointed out before, Upshur (1971) does conclude, in an analysis of different registers of learners' English, that time is a highly sensitive variable.

Additional factors may be considered extra- or co-linguistic (or, though properly linguistic, based on theories which have not been proved). It suffices our purposes to list only a few of these factors:

1. "Compression" of the syntagmatic units (Grinder and

Elgin, 1973), that is, amount of information conveyed in the unit.

Linguistically, "compression" is linked with the number of transformations which have participated in the generation of a string and, consequently, with vagueness and ambiguity, the hypothesis being that the stronger the compression of a string the larger the chances of being misdecoded. Our foreign speakers used strings remarkable because of their low compression when compared with the strings generated by the native speakers.

2. Semantic complexity of the message, that is, its degree of abstraction or emotive load.

It is common knowledge that while factual, non-emotional language is easily decoded, both inter- and intra-linguistically, that is by no means the case with --say-- the language of poetry or philosophy. Inter-linguistically, this seems to be particularly so in the case of English and Spanish (or any other neo-Latin language) because of the similarities in their technical vocabularies. Our stories are certainly not semantically complex, though humour partakes of many of the semantic characteristics of poetry and connotational language, in general.

3. Listeners' memory.

Most psychologists would agree that there is a process of immediate, or short-term memory which is distinct from long-term memory processes. Characteristically, immediate memory is a process of limited capacity (Murdock, 1965), a very small memory store which, according to one theory (J. Brown, 1958), would seem to be of a very rapid autonomous decay of "traces" and, according to another theory (Peterson and Peterson, 1959), would be affected by interference from materials which either precede or follow the material to be recalled. A very serious theoretical limitation is that there are no well-determined operational criteria for distinguishing between the observed facts of short-term and long-term memory (Postman and Keppel, 1969) --nor, indeed, to separate "retention" and "acquisition" in a convincing way (Höhrman, 1973).

In our intelligibility test --unlike our comprehensibility test-- the listeners were exposed to utterances shorter than the characteristic seven-unit order; as, on the other hand, we made both our utterances and pauses as uniform as possible, thus facilitating the equation of inhibition (both retroactive and proactive), we believe it is reasonable to assume that we controlled the short-term memory variable.

The univocous description of the memory processes, and the correlations of the different types of memory with each other and with other variables, is a task not yet completed.

4. Listeners' previous experience with the voice of the speaker.

According to Brodsky (1972), this variable appears to be important in decoding, indicating that the listener must be allowed some time to accommodate to the speaker's speech habits. This is normally reached through the phatic and ritual functions of discourse --normally present in native speech but remarkably scarce or even absent in our foreign speakers, as we have already seen. In a sense, this is implicit, of course, in the linguistic variable we mentioned above, namely, the degree of divergence between the speaker's and the listener's language.

5. Listener's attitude to foreigners' using (or rather, misusing) his native language or, to put it more technically, the listener's empathy in this field.

In the words of Guiora (1972)[24],

Empathy is a process of comprehending in which

> temporary fusion of self-object boundaries, as in the earliest pattern of object-relation, permits an immediate emotional apprehension of the affective experience of another, this sensing being used by the cognitive functions to gain understanding of the other.

The claim is often made that linguistic communities vary significantly in this particular kind of empathy, the English-speaking community ranking high. We do not know of any research on this topic which offers decisive conclusions.

Guiora, Brannon and Dull (1972) make the claim that empathy with the foreign culture also plays an important part in foreign language learning.

As we shall presently see, many of the factors which affect intelligibility also play a part in comprehensibility.

Intelligibility, as we understand it in this paper, has been partially accounted for by hypotheses of perceptual strategies and, more specifically, of speech perception strategies[25] as expounded, amongst others, by Rivers (1971), Stevens and Halle (1967), and Liberman, Cooper and others (1967). As already anticipated, we may try and subsume these hypotheses under the vague statement that intelligibility implies short-term hypotheses (i.e., hypotheses of limited predictability power) of what is being heard.

As we have already pointed out, "comprehensibility" implies long-term hypotheses of what is being heard. In other words, the listener plays --through "inferencing" and anticipation-- a much more important role in comprehensibility than he does in intelligibility, this accounting for the higher rates obtained for the former in our sample.

Comprehension seems to be the result of the listener's method of succesive approximations (Stevens and Halle, 1967) to the speaker's intended message. This is partly evidenced in our sample by the fact that frequently our "judges" unconsciously corrected the errors made by our foreign speakers, particularly when they were of a syntactic nature. There are, in our sample, approximately fifty instances of the listener's imposition of his competence on the speaker's error or vacua, as in

1 pass through a dark place
1a * pass for a dark place
2 PAST + so he tock a great vase
2a * PAST + so he take a great vase
3 after he had brought the plate

3a x after he had brought + 0

4 his girl-friend's house

4a x the house of his girl-friend

Actually, our judges went from the correction of ill-formed strings to the improvement of --for some native listeners-- unacceptable strings, as in

5 A man is in a restaurant; he was very happy

5a x? A man who is in a restuarant with + 0 is very happy

6 in place of the little vase

6a x? instead of the little vase

7 The assistant came with a duster and began to ...

7a x? The assistant came and with the duster began to ...

and even to the correction of stylistic errors, as in

8 One day Peter was with his wife; there was a pipe which ...

8a One day Peter was with his wife and there was a pipe which ...

Similar findings are reported by Rivers (1971), who concludes that a non-conventional and therefore, improbable, sequence of sounds will at first be interpreted as a familiar, or probable, sequence, and by Thorne (1971), who --as we said before-- maintains that the subjects of his experiment rarely reported ungrammatical sentences and frequently heard ill-formed sentences as well-formed, and when asked to copy sentences containing syntactic errors they unintentionally corrected them. As we have already seen, this was also the case in our own experiment.

In a wider sense, this model of language comprehension correlates fairly well with the algorithm for the acquisition of syntax implicit in Brown and Belugi (1964), in a paper which has become a virtual classic.

Comprehensibility seems to rely to a higher degree than intelligibility on the hearer's ability to reconstruct mutilated messages, an ability which --as we know -- is part of an individual's competence in a language; this, incidentally, explains why the foreign-speaking judges rated lower than the English-speaking judges in the intelligibility and comprehensibility tests.

We would agree, in this connection, with Judith Greene's statement (1972) that while "kernel" decoding is important in sentence processing, there is doubt as to whether a full transformational analysis is always needed to arrive at the meaning of a sentence --only we would replace the term "kernel" by the term "propositional structure." This seems to be the case in communication

Fig. 2

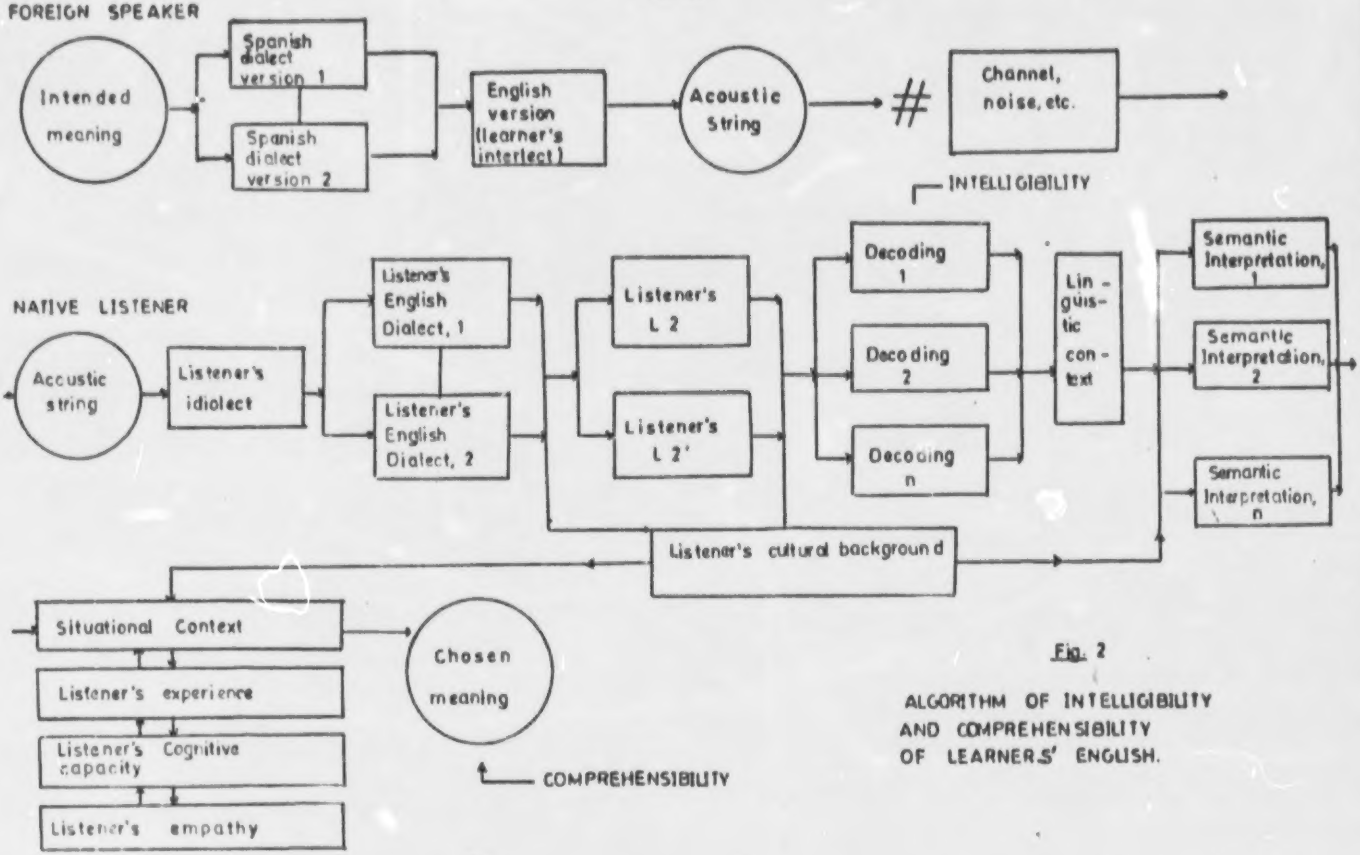

FOREIGN SPEAKER
Intended meaning
Spanish dialect version 1
Spanish dialect version 2
English version (learner's interlect)
Acoustic String
#
Channel, noise, etc.
INTELLIGIBILITY
NATIVE LISTENER
Accustic string
Listener's idiolect
Listener's English Dialect, 1
Listener's English Dialect, 2
Listener's L 2
Listener's L 2'
Decoding 1
Decoding 2
Decoding n
Lin-guis-tic con-text
Semantic Interpretation, 1
Semantic Interpretation, 2
Semantic Interpretation, n
Listener's cultural background
Situational Context
Listener's experience
Listener's Cognitive capacity
Listener's empathy
Chosen meaning
COMPREHENSIBILITY

Fig. 2

ALGORITHM OF INTELLIGIBILITY
AND COMPREHENSIBILITY
OF LEARNERS' ENGLISH.

between native participants. The situation becomes more complex when the speaker is non-native, as he may apply --because of interference-- transformations which are alien to the language being used. Ilse Lehiste (1971) points out, in this connection, the differences in syntactic variability between foreign speakers and native speakers.

In figure 2 we have tried to provide a (certainly partial) flow-chart of the decoding and comprehension processes along the lines of the classical model of communication. The speaker's intended meaning or message is expressed, implicitly or explicitly, in his particular dialect(s) of his native language (we assume that all educated speakers are pluri-dialectal in their native language) and then transferred into his foreigner's interlect of English, which is concretized in the acoustic string. The listener, in turn, perceives the transmitted string "filtered," first, by the communication channel and, secondly, by his native idiolect of English; his latent knowledge of several English dialects and his cultural background (including his possible knowledge of one or more foreign languages, at different levels of proficiency) allow him to formulate alternative decodings or readings of the message, and it is at this stage where we can say whether the message is "intelligible." An appreciation of the linguistic context where the message is embedded, followed by a second intervention of the listener's cultural background (including his possible knowledge of foreign languages), will allow him --in a first stage of "decontextualization[26]"-- to formulate alternative semantic interpretations of the message; these interpretations will, in turn, be evaluated and a chosen meaning decided by the interplay of the situational context and the listener's experience, general cognitive capacity and linguistic empathy; it is at this final stage of "decontextualization" where we can assess the comprehensibility of the message.

Each of the stages or steps shown in the diagram is relevant --in varying degrees-- to the intelligibility or comprehensibility of the message. Thus, for example, the Spanish speaker whose dialect contains the "perfect tenses" in the productive phase (as, say, the dialect of Santiago de Chile) will be more easily decoded or understood, when speaking English, than the Spanish speaker whose dialect only recognizes such tenses (say, the dialect of Buenos Aires); or his idiosyncratic articulation (e.g., a certain degree of lisping or an exaggerated reduction of weakly stressed vowels) may upset the listener in varying degrees. We certainly need not explore here the communication channel, but it is a well-known fact --for example-- that decoding a foreigner on the telephone is a much harder task than doing it in face-to-face conversation, the difficulty probably arising from the presence of physical "noise" in the "channel" as much as from the absence of visual clues.

Our flow-chart does not contemplate a direct path from "intended meaning" to "English version," sidestepping the native language (Spanish, in this case). Although there is no strict empirical evidence in support of this claim, this is meant to illustrate the pragmatic view that --phonologically, at least-- one never ceases to be a learner of a foreign language, that is, one never becomes a native speaker of a foreign language.

The stages or steps affecting the native English listener have been already discussed above, under the factors which determine the intelligibility or the comprehensibility of a message. We should like to add that the number of necessary decodings or readings of a message seems to be a function of the listener's latent knowledge of English dialects and of his cultural background (including, as we have already said, his possible knowledge of foreign languages), which accounts for the well-known fact that educated speakers decode and understand much better than uneducated speakers[27]; the choice of semantic interpretations, in turn, depends to a very large extent --as we have already said-- on such extra- or co-linguistic factors as relative presence of situational context and listener's personal characteristics, mainly experience, general intelligence (hence his capacity to imagine, infer and anticipate) and tolerance of foreigners' English[28].

Surely enough, the algorithm just discussed requires considerable modification and improvement (for one thing, it does not show clearly that comprehension appears to be an "easier" task than decoding) but it nevertheless reflects some basic stages in the decoding and comprehension processes, from the point of view of foreign language learning.

An analysis of such errors as appeared in isolation, or were easily isolated, as in Table 6, shows that --where sheer amount of errors is concerned-- phonological errors rank first, syntactic errors rank second, and semantic errors rank last, the ranking being valid both for intelligibility (decoding) and comprehensibility (understanding, i.e., decoding and "inferencing"). If, however, rather than considering sheer amount we look into the proportions of each major class of errors which were not decoded nor understood, we find that the ranking for intelligibility was in the decreasing order syntactic errors--phonological errors--semantic errors, while the ranking for comprehensibility was in the decreasing order semantic errors--syntactic errors--phonological errors,

Table 6

	TOTAL NUMBER OF ERRORS	INTELLIGIBILITY		COMPREHENSIBILITY	
		Number not decoded	%	Number not understood	%
SYNTAX					
Function words	21	14	67	4	19
Word order	7	2	29	2	29
Word shape	12	6	50	7	58
Corr. tenses	5	1	20	4	80
N-V agreement	1	1	100	-	-
Totals	46	24		17	
Percentage	100	52		37	
Ranking	2	1		2	
SEMANTICS					
Lex: dialectal interference	1	-	-	1	100
Lex: substitution	2	-	-	2	100
Lex: collocation	2	-	-	1	50
Idiomatic	6	1	16	4	67
Propositional	3	-	-	-	-
Stylistic	4	-	-	1	25
Totals	18	1		9	
Percentage	100	6		50	
Ranking	3	3		1	
PHONOLOGY					
Vowels	35	16	46	14	40
Consonants	33	14	42	8	24
Intonation	7	2	28	-	-
Stress	20	2	10	7	35
Pause	3	-	-	-	-
Totals	98	34		29	
Percentage	100	35		30	
Ranking	1	2		3	

Note:

The percentage figures in the vertical columns refer to the total number of errors of each type.

Table 6

ISOLATED ERRORS: THEIR EFFECT ON INTELLIGIBILITY AND COMPREHENSIBILITY

Rankings for

	Intelligibility		Comprehensibility	
	Amount	Not decoded	Amount	Not understood
Syntactic errors	2	1	2	2
Semantic errors	3	3	3	1
Phonological errors	1	2	1	3

In other words, where decoding is concerned, syntactic errors are the most risky but they are not too frequent, while semantic errors are both the least hazardous and the least frequent; phonological errors are only moderately risky, but they are the most numerous and frequent. Where understanding is concerned, the highest vulnerability is presented by semantic errors, phonological errors being the least hazardous, and syntactic errors proving only moderately risky; as in the case of intelligibility, however, risk has to be balanced with the number and frequency of errors.

The fact strikes us that --except for the cases of syntactic errors and intelligibility, and phonological errors and comprehensibility, where there is suspected correlation in both pairs-- there is no correlation between number of errors and their degree of comprehensibility or intelligibility, particularly in the major classification into syntactic, semantic, and phonological errors,

	Intelligibility		Comprehensibility	
	r	p	r	p
Major types	-.456	> .10	.080	> .10
Syntactic errors	-.820	.05	-.033	> .10
Phonological errors	.306	> .10	-.910	.05

Rather, in the case of comprehensibility, pronunciation errors (the most frequent) seem --at this stage-- to affect it least, while semantic errors (the least frequent) seem --also at this stage-- to affect it most. This seems to agree with Olsson's (1973) and Lindell's (1973) findings that semantic errors affect communication more than do syntactic errors.

However, as we shall see further on in the section dealing with what we have termed "criticality" of errors, this is only apparently so, first, because many semantic errors (and some syntactic errors, as well) originate in phonological errors --a fact which gives these the greatest importance in oral communication-- and, secondly, because the figures so far obtained are significantly altered as a result of the convergence of two or more errors on many undecoded single [illegible], which led to the application of several "confirmation" tests, where these converging errors were synthetically isolated.

As stated at the beginning of this section, the difficulty in conceptualizing comprehensibility from intelligibility stems partly, at least, from the fact that their determining factors, both linguistic and co-linguistic, overlap to a large extent. The important thing to bear in mind, though, is that the overlapping factors seem to have consequentially different incidence, for either process, on the final reading of the utterances. In general, we may hypothesize that the more specific factors, such as degree of structural divergence between both languages, degree of redundancy within the message itself, degree of "syntactic redundancy[29]" of the language, instabilities in the subsystems of the listener's idiolect (and, indeed, of his dialect), amount of redundancy and noise, and speed of speech, are less important for comprehensibility than they are for intelligibility, while --on the other hand-- the more general factors are also more crucial for comprehensibility than they are for intelligibility. This seems to be the case particularly with co-linguistic context, which appears to be of paramount importance in the comprehensibility of a message, which is one of the reasons why "special purpose" foreign language courses are generally successful. Newmark and Reibel (1968) point out that situational rather than grammatical cohesion is what is necessary for foreign language learning to take place; this seems to be so because comprehension requires the selection of what is crucial for a particular situation (Rivers, 1971).

The presence or absence of paralinguistic components may be considered --provisionally-- under the contextual factor. Our sample did not allow us to explore this aspect as there was no face-to-face communication; this, in fact, may be considered an additional shortcoming of our work, particularly as the speech act is hardly ever isolated from the paralinguistic components. Kenneth Pike (1956) provided decisive (in our view) theoretical support to the hypothesis that, in the communication process _via_ language, the linguistic system is interwoven with what are now termed "paralinguistic" (perhaps we should say "co-linguistic"?) items or systems. Thus, gestures play an important role in the task of "making oneself understood" which, together with the task of "making oneself intelligible," make up the pedagogical skill known as "speaking" a language. Also, feedback --necessarily absent from our experimental design-- plays an important part in speech production, as it is well known. In this connection, Ervin-Tripp (1964) proves that speech is affected not by the receiver alone, nor the topic alone, but by a specific combination of the two.

The variables or factors related to the listener seem to play a major part in comprehensibility, particularly where they refer to his age and educational level (Johansson, 1973), his degree of association with foreigners (Johansson, 1973), his general psychological characteristics (Johansson, 1973), and his "cognitive structure" (J. Carroll, 1972). As a component of the variable mentioned in the last place, we should like to mention memory; the role of memory in linguistic communication has been explored, amongst others, by Robert Lado (1970), who points out that, while memory for words breaks down significantly even for seventeen-word sentences, memory to reproduce thought hardly deteriorates even after forty-eight hours --which provides an additional explanation as to why our "judges" rated higher in the comprehensibility tests than they did in the intelligibility tests. Memory span differences in the L1 and in the L2 were explored by Wigdorsky (1971), partially contradicting, incidentally, Christophersen's view (1973) that there are few, if any, differences between foreign language learning and native language acquisition[30].

Table 7, "Comprehensibility and Intelligibility of the Stories," provides the comparative results of the "free recall" (comprehensibility) and the "dictation" (intelligibility) tests. As we have already pointed out, fifteen stories (Nos. 1 to 15) were told by the foreign speakers; ten of these stories were "under - stood[31]" by the judges, while only nine were "decoded[31]"; five stories were both understood and decoded (among them, the two highest ranking story in the intelligibility scale but no really high-ranking story in the comprehensibility scale); five stories were understood but not decoded; three stories were decoded but not understood; and two stories were neither decoded nor understood --one of them being story 12, the lowest in both the intelligibility and the comprehensibility ranks.

Two facts stand out from Table 7. First, that average intelligibility (66.7 per cent) is lower than average comprehensibility (71.5 per cent) though, possibly because of the size of the sample, the difference is not significant ($p > .10 \quad U = 90.5$). Secondly, that there is no correlation for the values in both series ($p > .10 \quad r_s = -.129$), so that one can not be predicted on the basis of the other; it follows that it is not unlikely for a text to be well decoded but only barely understood, and vice versa, although it is reasonable to assume that a well decoded message stands a better chance of being understood than a poorly decoded one. Going one step further, we believe that

Table 7

Story	Comprehensibility Percentage	Intelligibility Percentage
1	79	82
2	73	82
3	69	81
4	60	74
5	92	57
6	63	80
7	88	58
8	80	78
9	71	75
10	86	66
11	85	72
12	17	10
13	71	55
14	77	65
15	62	66
Averages	71.53	65.73
S.D.	17.355	17.61
S_{mean}	9.5	9.69

Ref. Tables 3, 5.

Table 7

COMPREHENSIBLITY AND INTELLIGIBILITY OF
THE STORIES: SPANISH SPEAKERS--ENGLISH LISTENERS

Table 8

Story number	Comprehensibility ranking	Intelligibility ranking	Understood	Decoded	+Dec. +Und.	+ Dec. -Und.	-Dec. +Und.	-Dec. -Und.
1	7	2	+	+	x			
2	9	3	+	+	x			
3	12	4	+	+	x			
4	15	8	-	+		x		
5	1	14	+	-			x	
6	13	5	-	+		x		
7	2	13	+	-			x	
8	6	6	+	+	x			
9	10	7	+	+	x			
10	3	11	+	-			x	
11	4	9	+	+	x			
12	16	16	-	-				x
13	11	15	+	-			x	
14	8	12	+	-			x	
15	4	10	-	-				x
			Number		6	2	5	2
			Percentage		40	13	33	13

Table 8

COMPREHENSIBILITY AND INTELLIGIBILITY OF THE STORIES: RANKINGS AND COMBINATIONS OF PROCESSES poor intelligibility may be a cause of poor comprehensibility, but that it will seldom be the only one.

A comparison of the levels of intelligibility achieved by this experimental group and a control group of six stories told by and listened to by native RP speakers showed a suspected significant difference ($p < .10 > .05$ $U = 90$); a similar comparison for comprehensibility proved highly significant ($p = .02$ $U = 15$).

As we have already seen, comprehensibility and intelligibility also proved uncorrelated in the control group consisting of foreign listeners (Table 5).

The above results constitute, in our view, evidence of the theoretical and practical distinction between what we have here typified as intelligibility and comprehensibility. The pragmatic view becomes evident when we consider that, possibly because of failure to make a distinction between these concepts, the teaching of "speaking" a foreign language has traditionally been concerned with making the student intelligible, on the assumption that comprehensibility will follow naturally; this has resulted in emphasis on "accuracy" and relative neglect of "fluency[32]."

"Accuracy" is not a sufficient condition for "fluency"; in fact, our data suggest that it is a necessary condition at only a very low level. This remark is supported by observation of real-life situations requiring the use of a foreign language: in Britain and the United States, for example, there are thousands of persons (e.g., immigrants) who are very fluent but not particularly accurate in English; many of us can manage perfectly well as visitors in Germany with only rudimentary knowledge of German; and there are many more situations which seem to endorse this view. Excessive, uninterrupted, intolerant insistence on "accuracy" (as when, for example, the teacher constantly interrupts the student in order to correct, then and there, his frequent errors of pronunciation, syntax or vocabulary) creates in the learner --or would-be learner-- a feeling of insecurity and ridicule, certainly dysfunctional to "fluency." Thus two aims that should be complementary are made antagonistic. The student's foreign language "stock," no matter how scant, should not be allowed to lie dormant but --like any amount of money saved-- should be put to work actively for communication purposes; in so doing, not only a sense of achievement will be generated at frequent intervals of the learning process but also the language "stock" itself will gradually grow larger and better --in fact, a process very similar to the one taking place during the acquisition and improvement of our native language.

The degree of correlation existing between the scores obtained by foreign listeners (Table 7) and English listeners (Table 5) for both intelligibility ($U = 85$ $p = .05$)[14] and comprehensibility ($U = 92.5$ $p = .05$) allows us to submit the hypothesis that, other things being equal, native speakers of English have a better chance of decoding and understanding learners' English than do listeners whose language background is neither English nor the foreign speaker's (even if they are fairly proficient in English). As reported earlier, this parallels Spolsky's statement (1968b) that non-native listeners have more difficulty in understanding under conditions of noise than do native listeners. This is partly so because the native listener is aware to a higher degree than the foreign listener of the function of the "check system[29]" operating in the language.

Earlier in this section, we suggested that the instabilities (mainly due to our latent knowledge of other dialects) found in the systems and subsystems of the listener's native language, facilitate the intelligibility of foreigners' interlects; this also seems to be the case with comprehensibility.

These instabilities resolve into synonymy and redundancy, thus ensuring the communication process. Classified as to their origin, these instabilities may be of an inter-dialectal or of an idiolectal nature. The latter may be further classified into diastratic, diatopic and diachronic (speakers' age, for our purposes), as for example in

1 Please /kʌm ʌp/
1a Please /kom op/
2 She wants some more /fud/
2a She wants some more /fuːd/
3 I /dount nou/
3a I /dəunt nəu/
3b I [dont nɒː]
3c I [daunt nau]
4 There's a man at the door
4a A man is at the door
5 I don't know how much the black coat is.
5a I don't know how much is the black coat.

On the other hand, the unsystematic use of native dialectal features (particularly in the phonology) by foreigners does interfere with both intelligibility and comprehensibility, as evidenced --for example-- by /veiz/, "vase," [wóŕə], "water," in a foreigner's pronunciation otherwise modelled on RP. This, in fact, may be considered as a handicap for our foreign speakers (and, perhaps, for all learners of English, in varying degrees) as, in addition to their "interlects" with clear interferential features, they have been exposed to ten or more models of English, native and non-native, usually expounding as many dialects or accents (see Fig. 2).

The behaviour of the "judges" in the comprehensibility test is worth exploring (see Table 9). The need to have relatively homogeneous judges motivated our discarding two of them from the original twelve (one of them understood only 39 per cent of the story told by the native speaker, while the remaining one understood only 49 per cent of the stories told by the foreigners, the average being 74.5 per cent). The average comprehensibility obtained for the foreign texts --74.5 per cent-- was well below the average comprehensibility obtained ($p = .01$ $U = 3.5$).

Table 9

Judge Story	1	2	3	4	5	6	7	8	9	10	$\bar{x}$	S.D.
1	90	70	80	80	60	90	80	80	80	100	81.0	10.44
2	80	80	70	70	80	90	60	80	60	50	73.0	10.04
3	71	43	71	72	86	100	71	86	57	71	72.7	14.97
4	50	80	80	70	40	70	80	40	40	60	61.0	16.40
5	90	90	80	100	90	100	100	100	100	80	93.0	7.81
6	78	56	78	78	44	100	67	89	78	22	69.0	21.66
7	100	100	86	86	57	100	86	86	86	71	85.8	12.86
8	22	100	78	78	56	100	89	100	100	89	81.2	23.87
9	100	57	100	100	86	100	57	71	43	71	78.5	20.50
10	100	90	100	80	100	70	70	100	90	100	90.0	11.83
11	100	100	27	100	100	91	91	82	82	64	83.7	21.86
12	10	10	20	10	20	40	10	20	10	10	16.0	9.17
13	89	89	89	89	89	89	67	67	67	56	79.1	12.49
14	88	88	88	75	75	75	88	88	88	88	84.1	5.96
15	72	71	100	43	100	71	43	100	57	43	70.0	22.50
$\bar{x}$	76.0	74.9	76.5	75.3	72.2	85.7	70.6	79.3	69.2	65.6	74.5	5.26
S.D.	27.10	24.10	22.79	22.45	23.90	16.76	21.75	22.00	24.16	25.00	5.32	

Table 9

BEHAVIOUR OF TEN JUDGES PARTICIPATING IN THE
COMPREHENSIBILITY TEST

There are apparently fifty instances (a high proportion, indeed) of the listeners' imposition of their own native competence on the speakers' errors and/or vacua, a fact that was mentioned earlier in this work, as was also the fact that --in many cases-- the listeners improved unacceptable or unstylistic utterances. The fact is worth mentioning that such "corrections" and "improvements" as described above were not changed to conform to the actual texts after a second dictation, that is, after the "dictation-dictation" test referred to below.

As it was to be expected, intelligibility and, presumably, comprehensibility improved with repetition, but to a lesser degree than we estimated. As shown in Table 10, "Intelligibility after a Second Dictation Compared with Intelligibility after a First Dictation," on next page, which displays the intelligibility ratings obtained with the "dictation-dictation" test, a second dictation of the test improved intelligibility only by 8.4 per cent ($p > .10$ $U = 91$)[33]. It is worth mentioning, however, that only eight out of the fifteen stories told by the foreign speakers were improved after the second dictation; the remaining stories maintained the same level of intelligibility or actually lowered it. A worsening of decoding seems to correlate with the amount of structural ambiguity in the texts. Improvements, on the other hand, mainly affected inflectional endings (past tense and third person singular endings). A higher percentage of improvement after repetition --20.0 per cent-- is reported by Olsson (1973), but her experiments were undertaken under different perspectives and conditions, so that background noise (which in our experiment was a constant) may be considered a variable.

The fact is also worth observing that a second dictation brings remarkable improvement of decoding of the stories which obtained the highest decoding scores after a first dictation (in general, 70 per cent or higher), so that 100 per cent intelligibility was achieved in three cases[34]. The stories which obtained a low intelligibility score after the "dictation" test, improved little, kept the scores, or actually lowered them after the "dictation-dictation" test.

Some remarks on the relations between intelligibility, grammaticality and acceptability are provided later on in this work.

The important thing to observe, pedagogically, is that considerable intelligibility and comprehensibility may be achieved, as judged by native listeners, even

Table 10

Story	Dictation test, percentage	Dictation-dictation test, percentage
1	82	100
2	82	100
3	81	98
4	74	72
5	57	54
6	80	100
7	58	69
8	78	96
9	75	98
10	66	75
11	72	70
12	10	10
13	55	53
14	65	65
15	66	66
Averages	66.7	75.1
S.D.	17.62	24.19

Ref. Table 7

Table 10

INTELLIGIBILITY AFTER A SECOND DICTATION COMPARED WITH INTELLIGIBILITY AFTER A FIRST DICTATION. ("DICTATION" AND "DICTATION-DICTATION" TESTS COMPARED) though the foreign speakers possess relatively low levels of formal proficiency in the language under consideration. In other words, the figures in Table 11, "Formal Testing, Intelligibility and Comprehensibility," seem to indicate that there is no correlation between the scores for formal testing (as assessed by the objective test, which proved to have a correlation of $r = .973$ at $p = .001$ with our subjective test) and the degrees of intelligibility ($p > .10$ $r_s = .441$) and comprehensibility ($p > .10$ $r_s = .127$)[35] achieved. This lack of correlation is hardly surprising since proficiency testing in foreign languages seldom takes into consideration --or does not do so sufficiently well-- the productive oral skills, particularly the communication skills, let alone *vis-a-vis* the native listener; this is the case even with the best of objective tests (e.g., the University of Michigan English Language Proficiency Tests, the Modern Language Association Tests) and --oftentimes-- with subjective evaluation by panels of judges. This is a matter that should be given careful consideration by evaluators and educators, as many of the speakers who failed the formal tests would have passed an intelligibility/comprehensibility test, and vice-versa.

There are several reasons for this: the goals of foreign language teaching are not generally clear, a

Table 11

	A	B	C	D
Story No.	Subj. test scores	Obj. test scores	Comprehensibility	Intelligibility
1	70	80	79	82
2	52	70	73	82
3	50	69	69	81
4	55	72	60	74
5	62	78	92	57
6	60	74	63	80
7	40	50	88	58
8	30	50	80	78
9	44	60	71	75
10	46	62	86	66
11	49	64	85	72
12	29	48	17	10
13	43	65	71	55
14	28	45	77	65
15	25	44	62	66

	r	r_s	p
A and B	0.873	---	=0.001
B and D	(0.433)	0.441	> 0.10
B and C	(0.265)	0.127	> 0.10

Ref. Tables 1, 7.

Table 11

FORMAL TESTING, INTELLIGIBILITY,
AND COMPREHENSIBILITY

correlation is usually supposed to exist between the oral communication skills and the manipulative or exclusively receptive skills, testing productive oral language is by no means easy.

We wish to close this section with a reminder of the fact that intelligibility and comprehensibility are to be envisaged as clines or scales, rather than as binary oppositions --that is, utterances present "degrees" of intelligibility and comprehensibility. It is only for the sake of simplicity of presentation that we, arbitrarily, speak in dichotomic terms most of the time. Something similar may be said concerning grammaticality, acceptability, and criticality, with which we will be concerned in the next two chapters.

This section has been concerned with shaping two hypothetical constructs, namely, intelligibility and comprehensibility. We believe we have provided data and arguments in support of the view that they are different concepts. Although comprehensibility appears to be a more important concept for practical purposes, its very complex nature --touching the area of general cognitive capacity and other extra-linguistic variables-- requires that its analysis become the joint effort of linguists and psychologists. Consequently, we shall have no more to say on comprehensibility, except marginally. What follows is mainly concerned with intelligibility and its relation with grammaticality, acceptability, and criticality of errors.

GRAMMATICALITY, ACCEPTABILITY AND INTELLIGIBILITY

We thought it reasonable to assume some kind of relation between intelligibility --the subject of a previous section-- on the one hand, and grammaticality and acceptability, on the other hand. In order to investigate the possible correlations, thirty-one sentences containing the most typical syntactic and semantic errors were submitted to three panels of "judges" for their grammaticality, acceptability and intelligibility. The texts of these sentences may be found in Appendix D. All our judges were native speakers of English, sixth-year comprehensive school students, linguistically unsophisticated (none of them spoke a foreign language nor had the occasion of listening to one).[37]

For us, a string is "grammatical" if it is generated by a native speaker, and it is "acceptable" if it does not appear alien, odd or inappropriate to the educated native speaker; grammaticality is determined by the "formation rules" and is mainly concerned with the phonology and the syntax of the speaker's dialect(s); acceptability is determined by the "speaking rules," and it is concerned with semantics as much as with syntax and phonology, also within the area of the speaker's dialect(s). Thus, "She don't care" and "I don't see nobody" are grammatical, but it is quite likely that a panel of educated RP listeners (or SA listeners, for that matter) would rate them as unacceptable. On the other hand, "* Speak you English?" and "* I not speak English" are ungrammatical because, as far as we know, they would be generated by no native speaker of English. Consequently, acceptability (a matter of groups and of consensus) is a much more relative concept --or construct-- than grammaticality (referred to the system, as it exists in the individual). We believe this approximates Chomsky's view that grammaticality is relative to linguistic competence (the "system"), while acceptability is relative to performance ("use of the system"). It is obviously frequent and --indeed-- necessary for theoretical constructs to undergo modifications when applied to actual field problems.

It follows that all acceptable utterances are grammatical, but that not all grammatical utterances are necessarily acceptable. In other words, grammaticality is --in our model-- "lower" than acceptability. The materials in foreign language courses and textbooks (generally produced by single authors or small teams of authors) are usually grammatical, but it is unlikely that they will be considered equally acceptable by large groups of educated native speakers. (Some or many language expressions in the textbooks will unavoidably be old-fashioned or "frozen," which may be considered "odd" --i.e., unacceptable, for at least one of the reasons quoted above-- by many native listeners). We would expect intelligibility to be "lowest" in the scale, as most grammatical sentences are apparently intelligible but it is possible for an utterance to be intelligible but ungrammatical. Comprehensibility, if incorporated to this scale, would seem to be "higher" than intelligibility but "lower" than grammaticality.

Of all three hypothetical constructs discussed above (grammaticality, acceptability and intelligibility), the most elusive is --because of its particularly relative nature-- acceptability; hence the need, in addition to having panels of linguistically unsophisticated "judges," to ask all questions on acceptability indirectly.

The panel passing judgement on grammaticality (twelve judges) were given the thirty-one sentences in printed form and asked to correct any mistakes or to rewrite the sentences completely. Contrary to what we had expected, the results were remarkably scattered, as shown below,

2	sentences were considered grammatical by	100%	of the judges
2	" " " "	92%	" " "
4	" " " "	83%	" " "
7	" " " "	75%	" " "
2	" " " "	67%	" " "
1	" " " "	58%	" " "
2	" " " "	50%	" " "
2	" " " "	42%	" " "
1	" " " "	25%	" " "
1	" " " "	17%	" " "
4	" " " "	8%	" " "
3	" " " "	0%	" " "

That is, in only eight of all thirty-one sentences was there unanimity (100 per cent of the judges agreeing) or near-unanimity (92 or 83 per cent of the judges agreeing); these figures suggest that even "grammaticality" is far from being unanimous ($\bar{x}$ = 54.55 S.D. = 32.95 Skewness = = -1.49)[36].

The judges were relatively even (with one exception) as to their severity to pass judgement on grammaticality, ranging --as a group-- from considering ten to nineteen sentences ungrammatical. The one exceptionally severe judge pronounced twenty-three sentences ungrammatical being, in fact, the only judge who rejected sentences 7 and 11 (see Appendix D). As the cognitive variables were controlled (as much as it is possible to control them in this kind of experiment) this pointed to an attitudinal difference worth exploring further. An interview with this judge did confirm our suspicion that she became irritated by ill-formed English, but there should be ways of expliciting this variable.

The panel passing judgement on "acceptability" (fourteen judges) were also given the thirty-one sentences in printed form, but requested to rate them as

N native to the judge's variety of English
D dialectal, not native to the judge's English, but still considered native English,
F foreign.

Because of the judges' lack of sophistication in linguistics, both the sentences marked F and those marked D were interpreted as being unacceptable to the judge. The figures obtained were highly scattered, as shown below, but this was to be expected if we consider the results for grammaticality,

1	sentence was considered acceptable by	86%	of the judges
2	sentences were considered acceptable by	71%	" " "
4	" " " "	57%	" " "
11	" " " "	43%	" " "
4	" " " "	29%	" " "
6	" " " "	14%	" " "
3	" " " "	0%	" " "

The figures obtained for acceptability ($\bar{x}$ = =36.42 S.D. = 21.43 Skewness = –4.84) suggest that it is a highly subjective matter, where opinions are divided.

Here the judges' attitude seems to play a more important role than in the assessment of grammaticality; while ten out of fourteen judges ranged from 15 to 17 in their negative replies (i.e., judging sentences as unacceptable), the remaining four judges ranged from 26 to 28 in their negative replies. As in the case of grammaticality, an interview with these four judges evidenced a relatively low tolerance for foreigners' English. The cognitive variables were, as in the previous case, under as much control as these experiments permit.

Sentence 28 presents an interesting case: though formed and pronounced by an educated speaker of English (Dublin accent), it was considered to be both unacceptable and ungrammatical by all the judges.

The panel passing judgement on intelligibility (twelve judges) were asked to take down in dictation all thirty-one sentences mentioned above. As it has already been said, these sentences contained syntactic and semantic errors only and were detached from context. The results obtained were the following,

0	sentence	was	decoded	by	100%	of	the	judges
1	"	"	"	"	92%	"	"	"
4	sentences	were	"	"	83%	"	"	"
10	"	"	"	"	75%	"	"	"
5	"	"	"	"	76%	"	"	"
4	"	"	"	"	58%	"	"	"
4	"	"	"	"	50%	"	"	"

3 sentences were decoded by 42% of the judges

0 sentence was decoded
by less than 42% of the judges

These values also appear to be asymmetrically distributed ($\bar{x} = 68$ S.D. = 13.9 Skewness = -1.55), suggesting that our "judges" varied considerably in their ability to decode a message --though variation here was not nearly as large as variation among the judges participating in the acceptability test.

The judges' "severity" in rating ill-formed or suspectedly ill-formed sentences as either grammatical or acceptable and their ability or willingness to decode them (speakers' "intelligibility") is contrasted in Table 12. Their ability to decode was significantly higher than their willingness to rate as acceptable (P = .2% $\chi^2 = 16.84$) but not significantly higher than their assessment of grammaticality (P > 10% $\chi^2 = 2.54$). On the other hand, the judges assessing grammaticality were significantly more lenient (P = 5% $\chi^2 = 5.82$) than those assessing acceptability. This seems to confirm the view, stated above, that --in foreign language use-- intelligibility is easier to attain than grammaticality, and that grammaticality is easier to attain than acceptability.

Table 13 displays the ratings for acceptability, grammaticality and intelligibility obtained by each of our thirty-one sentences. Acceptability appears to be well correlated positively with grammaticality ($p = .002$ $r_s = .708$ $r = .723$)[38] but not sufficiently correlated with intelligibility ($p > .10$ $r_s = .210$ $r = .556$)[38]; in other words, and if we consider that intelligibility is more easily attained than acceptability, the fact that a sentence is decoded is no guarantee that it will be also accepted.

What is rather interesting, in our view, is the high degree of intelligibility achieved in spite of the virtually total absence of context. In fact, the figures obtained for this test are similar to the ones obtained for the "dictation test," discussed in a previous section, where the linguistic context (at least) did play some part, in spite of our efforts to control this variable. We may conclude then, that intelligiblity --as defined in this work-- appears to be relatively context-independent. This seems to weaken the claim that language tolerance is a variable in intelligibility, as put forward --amongst others-- by Lindell (1973), Johansson (1973), Upshur and Palmer (1974), Kersten and Ott (1970) and Valdman (1970).

We do not wish to suggest, however, that this is also the case for their explicit or implicit claims concerning language comprehension.

This seems to be reinforced by the fact that the results of a similar test for Spanish (Appendix E), administered to Spanish-speaking listeners, did not prove significantly different (by Fisher's "chi-squared" test, with $P > 5\%$) from the English intelligibility test discussed above[39].

The main practical conclusions we can come to in this section --some obvious-- are the following:

1. A sentence must be intelligible before it can be judged for either grammaticality or acceptability. A sentence, once decoded, may be grammatical, but this is not a necessary condition.

2. Though, as it is to be expected, "judges" vary considerably in their ability to decode and in their assessment of grammaticality, variation in their willingness to qualify a sentence as acceptable is considerably larger, as suggested by

our data, viz.,

	$\bar{x}$	S.D.	Skewness
Intelligibility	68.00	13.90	-1.51
Grammaticality	54.55	32.95	-1.49
Acceptability	36.42	21.43	-4.84

3. Variability among judges appears to be not quite as large in decoding as in the assessment of grammaticality and --particularly-- as in willingness to consider acceptable.

4. A sentence may be intelligible, even if judged unacceptable.

5. A sentence which is intelligible and grammatical may well be unacceptable, though it is logical to assume that a sentence which is grammatical and/or intelligible is more likely to be judged acceptable than one which is not.

6. Intelligibility is possibly relatively independent of context.

As pointed out at the end of the previous section, we are only marginally concerned with comprehensibility, which accounts for its absence from the conclusions listed above. In accordance with strict linguistic theory where semantics plays a central role, however, our working model should be modified from

Acceptable
Grammatical
Intelligible

to

Acceptable
Grammatical
Comprehensible
Intelligible

Although this is reasonable, we feel it should be supported by empirical evidence.

The conclusions listed above have several implications. First, we should examine the different types of errors made by learners and try to establish which are critical to each of the concepts we have considered; because of several limitations (logistic limitations being not the least important) in this work we are exclusively concerned with criticality for intelligibility. Secondly, we should consider the theoretical and practical consequences of the judges' variability --a subject which transcends the possibilities and objectives of this work. The pedagogical implications with regard to aims and methods will be discussed later in the thesis.

Table 12

Percentage of judges answering positively *	Number of judges rating the sentences as Intelligible	Grammatical	Accepatble *
100	0	2	0
92	1	2	0
83	4	4	1
75	10	7	2
67	5	2	0
58	4	1	4
50	4	2	0
42	3	2	11
33	0	0	0
25	0	1	4
17	0	1	6
8	0	4	0
0	0	3	3

Average values for

Intelligibility	66.6
Grammaticality	54.5
Acceptability	36.4

---

* Normalized scores

Table 12

CONTRASTED INTELLIGIBILITY, GRAMMATICALITY AND
ACCEPTABILITY: JUDGES (SPANISH SPEAKERS--
--ENGLISH LISTENERS)

Table 13

Sentence number	Acceptable N	Acceptable %	Grammatical N	Grammatical %	Intelligible N	Intelligible %
1	2	14	1	8	10	83
2	2	14	6	50	9	75
3	10	71	9	75	6	50
4	4	29	9	75	8	67
5	6	43	5	42	8	67
6	6	43	7	58	9	75
7	6	43	11	92	7	58
8	2	14	0	0	9	75
9	4	29	0	0	10	83
10	2	14	2	17	11	92
11	6	43	11	92	9	75
12	6	43	1	8	10	83
13	6	43	8	67	9	75
14	4	29	9	75	6	50
15	6	43	10	83	7	58
16	6	43	10	83	6	50
17	8	57	8	67	7	58
18	8	57	9	75	9	75
19	8	57	12	100	5	42
20	2	14	5	42	9	75
21	6	43	10	83	5	42
22	10	71	12	100	5	42
23	6	43	6	50	10	83
24	0	0	1	8	9	75
25	2	14	3	25	9	75
26	0	0	1	8	9	75
27	12	86	9	75	7	58
28	0	0	0	0	8	67
29	8	57	10	83	6	50
30	6	43	9	75	8	67
31	4	29	9	75	8	67
$\bar{x}$		36.4		54.5		66.6
S.D.		21.43		32.95		13.49

Table 13

CONTRASTED ACCEPTABILITY, GRAMMATICALITY AND INTELLIGIBILITY RATIOS: SENTENCES (SPANISH SPEAKERS-ENGLISH LISTENERS)

CRITICALITY

Our main hypothesis is that, while non-English speakers (speakers of Chilean Spanish, in this case) may commit many errors when they speak English, yet very few of these errors, considered in isolation, actually prevent decoding of the message intended by the foreign speaker. We have here termed "critical" such an error which prevents decoding of a message by 30 per cent or more of the judges in one or more of the tests devised for this purpose. As we shall see below the isolation of errors made it necessary, in most cases, to devise and apply one or more such tests.

On the other hand, errors decoded by more than 70 per cent of the judges have been considered non-critical to intelligibility; occasionally we have set up an intermediate level of criticality, particularly when the same error recurs and is totally (or almost totally) decoded by one panel of judges but decoded below the 70 per cent minimum by another panel of judges.

The threshold 70 per cent figure is arbitrary but not groundless. It is, in fact, slightly higher than the intelligibility figures obtained for judges decoding speakers of their same language --65 per cent for English and 66 per cent for Spanish, as shown by our corpus.

On the other hand, the mere decoding of a message is a rather theoretical exercise, as the speech act always takes place within a network of contexts, both linguistic and extra-linguistic. Comprehensibility should, consequently, be the main concern of a work of this type. Thus, Marina Burt (1975) suggests that learners' errors should be classified into "global" or "local," as to whether they affect overall sentence organization or single elements of a sentence, the assumption being that while the former interfere with communication seriously, the latter do not --and she goes on to suggest, along with many other applied linguists, that classroom strategy should have as a target mainly those errors that affect communication.

It so happens, however, that the extra-linguistic variables (e.g., listener's general experience, degree of predictability of the message, listener's attitude to foreigners) are virtually impossible to control, which renders a comprehensibility test of only limited value in linguistic research. To a very large extent, language comprehension tests are measurements of the listener's intelligence, experience, imagination and willingness to understand a message which is formally distorted or conceptually irrelevant to his interests and needs. From another point of view, they are measurements of the originality or predictability of the message itself.

The complex of variables participating in language comprehension may be partly visualized in the model proposed by Peter Reimold (1975). In our view, the probabilistic nature of what he calls the "encyclopedic rules" and the syntax-free nature of many of the "semantic linking strategies" make the model virtually independent of linguistic variables.

On page 74 our intent was to formulate a simple algorithm of intelligibility and comprehensibility, specific to our purposes, as we understand them. With intelligent, educated and willing listeners such as our "judges," it is not surprising that the comprehensibility of the texts proved higher than their mere intelligibility. We cannot provide the explanation of why an error prevents or does not prevent understanding (i.e., presents high or low comprehensibility), except for relative correlation with intelligibility, but it is important to note that for a high proportion of listeners (and possibly for different reasons, usually non-linguistic, in each case) certain errors do prevent comprehension, even though they may admit decoding (i.e., evidence sufficient intelligibility). It is for the reasons mentioned above that we will be concerned with criticality for intelligibility alone.

It is part of our hypothesis that the major types of errors --semantic, syntactic, and phonological-- rank differently in criticality for intelligibility; specifically, that phonological errors are of paramount importance, while both syntactic and semantic errors have only scant impact on intelligibility. This assertion is further elaborated below, where we discuss the distribution and ranking of the different types and subtypes of errors.

Although we speak of "critical" and "non-critical" errors (occasionally, we also speak of "partly critical" errors) we do not wish to imply that criticality is discrete, let alone dichotomic. The fact that we have to speak in these terms is, indeed, one of the many limitations of this work. We rather conceive criticality as a cline or scale, where some points —which result from the intersections with other clines or scales— may be relatively arbitrarily marked, that is, where a particular error is critical to intelligibility, comprehensibility, grammaticality or acceptability.

We have already maintained that the intersecting scales or clines are, in increasing degree, partly determined by extra-linguistic variables whose quantification and control is difficult, if not impossible. This makes the concept of criticality extremely relative and dynamic, a fact which has led many linguists and research workers in foreign language learning to relinquish and, in some cases, question the whole task of error analysis; thus, Jain (1974) maintains that "errors do not seem to submit themselves to any precise systematic analysis," while Roger Bell (1974) terms error analysis a pseudo-procedure and suggests a reconsideration of the status of the concept of "interlanguage"; Hammerberg (1973) also questions the usefulness of error analysis. In fact, error analysis was already questioned in the fifties by the proponents of the "Army Method" and the "Aural/Oral Approach," in the United States, as they would insist on the view that contrastive analysis should make it possible to predict all errors of a linguistic origin, thus making "a posteriori" error analysis redundant --or risky, if contrastive analysis was not undertaken.

We believe, however, that this is an extreme view, partly the result of overlooking the fact that criticality is a continuum rather than a dichotomy, and partly of a taxonomy of errors constructed along mainly etiological lines[40]. We rather share Corder's view (1974) that many errors, at least, appear systematically and may, consequently, be subjected to systematic treatment, the making of errors being --in fact-- a strategy employed both in language acquisition and in language learning.

We do not entirely agree --nevertheless-- with his claim that "only the situational context could show whether his [the learner's] utterance was an error or not" (Corder, 1974). We have two reasons for this: first, linguistic context would seem to satisfy the necessary conditions in many cases (particularly if we consider mere intelligibility); and secondly, learners' utterances generally contain more than one error, some of which are critical while most are not[41].

The view that errors may be hierarchisized was expressed by Johansson (1973), though his ranking factors or criteria --generality, frequency, comprehensibility, degree of irritation to the listener-- only partly correspond to ours, particularly where generality and frequency are concerned. Our provisional findings for isolated errors, as reported in Table 6, rather suggest that there is no correlation ($p > .10$ $r = -.456$) between the number of the major types of errors (i.e., semantic, syntactic, and phonological [42]) and their degree of intelligibility; and that there is possible correlation ($p = =.05$ $r = -.82$) between number and intelligibility in the case of the subtypes of our syntactic errors.

As we have already pointed out, the detection of the relative criticality of an error is seldom --if ever-- straightforward as almost always more than one error occurs in a single utterance --and usually at the same place of a single utterance.

An examination of the utterances (sentences, phrases, or even words) which had not been decoded --or which had been insufficiently decoded-- in the original texts/tapes (i.e., stories 1 to 15), showed that frequently several types of errors (phonological, syntactic, and/or semantic) converged on one place. Thus, for example, in story 9, the intended sentence

"He was sitting in the girl's place"

was rendered by the speaker as

"He was sitting in the [post] of the [göl]

and was not intelligible, of course, to the majority of the "judges." Now, this lack of intelligibility may be attributable to one or more of the following causes

(a) wrong pronunciation of "girl" as [göl], a phonological error with semantic consequences;

(b) wrong pronunciation of "post" as [post], also a pronunciation error;

(c) the use of "post" for "place," a semantic error, and

(d) the use of an "of-phrase" where perhaps most native speakers of English would expect the "genitive case," this possibly being a syntactic error on the part of the speaker.

Two strategies were adopted in order to try and solve this question:

1. Two tapes were prepared and the judges asked to report on their intelligibility of the utterances (mostly sentences and phrases) in them. One tape, recorded by a native RP speaker, contained utterances completely free from pronunciation errors but maintained such syntactic and semantic errors as appeared in the original texts; this tape will be henceforward referred to as the "syntactic-semantic" test, or tape. The remaining tape, recorded by a foreigner to English, was free from syntactic and semantic errors but contained all such pronunciation errors as appeared in the original recordings; this tape will be henceforward referred to as the "pronunciation only" tape, or test. The results obtained from these tests --particularly with the "syntactic-semantic" test-- are recorded in Table 15, below, and will be discussed together with the results obtained for the "isolated error" tests, or test, described in our next paragraph.

2. Such errors as converged on a single utterance were isolated, so that each utterance could contain only one (exceptionally two) errors; to this effect, it became necessary to "synthesize" utterances free from errors (semantic, syntactic, or phonological), except for the one error under consideration in each utterance. As there were utterances with as many as four converging errors, it became necessary to "synthesize" four such utterances and, consequently, to prepare four different tapes; these tapes, which are complementary, will be henceforward referred to as the "isolated error" test. The following example should illustrate the procedure outlined above:

the original sentence,

x He was sitting in the [post] of the [göl]

contains four different errors, as said before, and offers four possibilities to account for its unintelligibility,

i. x He was sitting in the [gölx] place
("Isolated error" tape No. 4)

ii. x He was sitting in the girl's [post]

("Isolated error" tape No. 3)

iii. * He was sitting in the girl's [pəust]

("Isolated error" tape No. 1)

iv. * He was sitting in the place of the girl

("Isolated error" tape No. 2)

Our four panels of "judges" (a different panel for each of the versions mentioned above) responded as follows:

"Isolated error"	Percentage decoded	Tape and sentence Nos.
i	100	4/18
ii	0	3/16
iii	85	1/18
iv	100	2/20

On the assumption that a text is considered intelligible if decoded by more than 70 per cent of the judges, it is obvious that ii, wrong pronunciation of "post," is critical, while the remaining errors (wrong pronunciation of "girl," wrong use of "post" for "place," and presumably wrong use of an "of-phrase") have to be considered provisionally non-critical to intelligibility.

Similarly with "He didn't come," pronounced *[xi dí:din kʌm].

An analysis along the lines outlined above suggests that lack of intelligibility of this sentence is due neither to * [xi] (100 per cent decoded), * /di:dnt/ (100 per cent decoded), nor * /didn/ (100 per cent decoded), but to an "intrusive" [i] --a typical error of learners with a Spanish background-- in * /didint/, which was decoded by only 60 per cent of the judges.

"Labyrinth," appearing in story No. 2, pronounced * /læbirínθ/ by our foreign speaker, was "split" as follows,

* /læ brínθ/, wrong stress

* /lábrinθ/, wrong tonic vowel

* /lǽbrint/, wrong final consonant

* /lǽbirinθ/, intrusive /i/,

all four errors proving critical to intelligibility. It is possible that the relatively low frequency of this word contributed to making it more difficult to hypothesize or reconstruct by the native "judges." This is, incidentally, one of the instances where lack of resources limited the scope of our research.

The following case required a slightly more elaborate analysis. The intended sentence "Instead of sewing the skirt she tore it" was pronounced by the speaker as

*[inθté^{d}.] of /soin/ the skirt she tore it

The errors were isolated as follows,

(a) */inθtéd/ of sewing the skirt she tore it (1/34)

(b) *[insté^{d}.] of sewing the skirt the tore it (2/35)

(c) * Instead of /soiŋ/ the skirt she tore it (3/36)

(d) * Instead of /səuiŋ/ the skirt she tore it (4/35)

where "1/34" means "isolated-error tape 1, sentence No. 34," and so on (the texts of the "isolated error" test appear in Appendix C), was decoded as follows by the different panels of judges:

(a) 100 per cent

(b) 100 per cent

(c) 60 per cent

(d) 70 per cent

On the assumption of a 70 per cent minimum, both (c) and (d) appear as critical to intelligibility. From the evidence of other "isolated errors" in our corpus, however, and of dialectal use (e.g., substandard American English, very common in popular songs) we conclude that (d), that is, the use of /n/ for /ŋ/ in present participle endings, is not really critical to intelligibility. We reach the conclusion, therefore, that (c), the substitution of /o/ for /əu/-/ou/, is the critical error --which is not surprising, as it is a pronunciation (phonemic, in this case) error with semantic (lexical) consequences.

In "She was watching T.V.," pronounced

* She was /si:in ti: bi:/

there are apparently three errors, viz.,

(a) * She was seeing T.V. (semantic error, decoded by 60 per cent of the judges; 2/14)

(b) * He was /si:in/ the case (phonological error, decoded by none of the judges; 3/10)

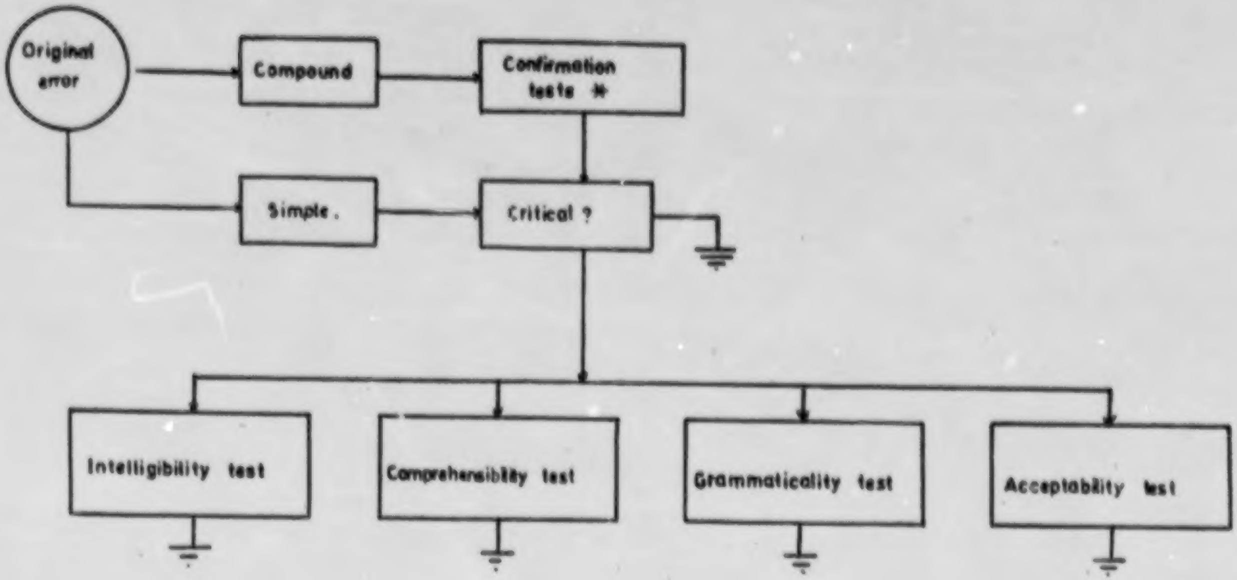
(c) x She was watching /ti: bi:/ (phonological error, decoded by 90 per cent of the judges; 4/11)

The low level of intelligibility of (b) [illegible] caused, we believe, by the fact that the native listener expects a passive construction, but what follows is incompatible with his expectations. Furthermore, as said before, /n/ as an ending for the "-ing" form has shown not to be critical in other contexts, which leaves us with (a) as the critical error in this case.

As explained above, the four tapes which constitute the "isolated error" test were complemented with our first strategy for the detection of critical errors, namely, the "syntactic-semantic" test and --occasionally-- the "pronunciation only" test.

Figure 3, below, illustrates the set of instruments we used to determine the criticality of errors for intelligibility; it also illustrates the set of instruments we employed to determine grammaticality, acceptability, comprehensibility, and intelligibility itself.

Fig. 3


Original error
Compound
Confirmation tests *
Simple.
Critical ?
Intelligibility test
Comprehensibility test
Grammaticality test
Acceptability test

---

* Confirmation tests :

(a) "Isolated error" tests (4)
(b) "Syntactic-semantic" test
(c) "Pronunciation only" test

Fig. 3

ALGORITHM FOR THE DETECTION OF CRITICALITY, INTELLIGIBILITY, COMPREHENSIBILITY, GRAMMATICALITY, AND ACCEPTABILITY.

Our "confirmation tests" (i.e., the "isolated error" test and the "syntactic-semantic" test, the "pronunciation only" test being left in reserve as a complement to the "syntactic-semantic" test) show that, out of a total 252 errors appearing in the texts, only 44 proved critical to intelligibility --that is, failed to be decoded by more than 70 per cent of the judges (there were five different panels of judges, all of them speakers of standard English and linguistically unsophisticated).

The critical errors may be classified as shown, in Table 14, below. The figures given in this Table sharply conflict with the view, current in some foreign language teaching circles, that all pronunciation errors are of little importance to the communicative aim of foreign language learning; at the same time, they give secondary importance to Olsson's discovery (1973) that semantic errors are of greater importance to communication than syntactic errors.

The inventories of errors provided in the following sections give more information concerning the degree of criticality of the different types and

Table 14

	Phonological	Syntactic	Semantic	Total criticality	Total in test
Isolated Error Test,					
tape 1,	9	-	3	12	51
tape 2,	5	1	1	7	52
tape 3,	8	-	-	8	50
tape 4,	9	12	-	11	51
Syntactic-Semantic Test	-	3	3	6	48
Totals	31	6	7	44	252
Percentages	70	14	16	100	-
P = 1% "chi-squared" = 27.31 (Cochran's test)					
(Pronunciation Only Test)	25	-	-	25	48

Ref. Table 19

Table 14

ERRORS CRITICAL TO INTELLIGIBILITY, PER TEST AND PER MAJOR TYPE subtypes of errors.

The enormous incidence (70 per cent or more) of the critical phonological errors over the total critical errors in our corpus is partly a consequence of the fact, mentioned earlier, that phonological (i.e., pronunciation) errors are far more numerous and frequent than either syntactic or semantic errors[43].

One of the effects --perhaps the principal one-- of a pronunciation error is to disguise a word as another or to allow equivocal interpretations, e.g.,
--x/klos/, for "cloth," interpreted as either "cloth" or "clothes."

--x[áŋgri], for "angry," interpreted as either "angry" or "hungry."

--x/jan/, for "John," interpreted as either "John" or "Jan," the listener not being necessarily aware of the interlinguistic equivalence of both names.

--x/soiŋ/, for "sewing," interpreted as either "sewing" or "sawing."

--x/wei/, for "weight," unanimously interpreted as "way."

--x/hǽmag/, for "hammock," interpreted as either "hammock" or "hammer."

As a result of this, a great number of apparently semantic errors may be traced back to phonological origins.

The low level of criticality of the syntactic errors will not come as a surprise to those engaged in the teaching of English to Spanish speakers (nor, we daresay, to the teacher of any foreign language), where practice shows that the learner can get along fairly well even if he overlooks affixation and sequence. Perhaps this is an experience common to the "emergencial" use of any foreign language, particularly within the Western branches of the Indo-European family. The fact remains that, for all the efforts of contrastive analysis (which up to this date has been mainly concerned with patent rather than latent structure), Spanish syntax and English syntax appear to be quite similar, English word order not being so rigid as implied by most pedagogical grammars and Spanish word order being less flexible than commonly believed.

As in other places of the present essay, it is worth exploring what we might term the "level of severity," or tolerance, of the judges

Percentage decoded	Number of judges
76	2
78	4
80	3
82	6
84	5
86	5
88	5
90	3
92	4
94	3
96	2
98	1

$\bar{x}$ decoded = 85.95 per cent

S.D. = 5.76

Skewness = .75

The near-normal distribution of the judges' "severity" suggests that the panels were quite regular as to their tolerance of foreigners' errors (as was also the case with the panel of "judges" participating in the comprehensibility test, Table 9) . What is indeed surprising is that there was one judge who was able to decode all forty-eight utterances he was exposed to.

In spite of the fact that the sentences in these tests were "synthesized" so as to contain only one (exceptionally two) errors, it is our opinion that both the small amount of "critical" (i.e., undecoded) errors

--17 per cent-- and the high degree of tolerance evidenced by the judges, confirm our earlier statement that --as a whole-- the level of intelligibility of the speakers participating in the experiment was high, regardless of their relatively large number of pronunciation errors.

We wish to close this section with a brief analysis of Table 15, which contrasts the results obtained in the "syntactic-semantic" and the "pronunciation only" tests. What first strikes our attention is that twenty-two out of all forty-eight sentences were perfectly decoded in both tests, a proportion which seems to lend support to our assertion of the previous paragraph to the effect that our speakers' intelligibility level was rather high, a conclusion which is reinforced by the fact that only two sentences (Nos. 4 and 29) were not decoded by the "judges" of both panels; perhaps more striking is the fact that while only four sentences (marked * in Table 15) were not decoded by the judges in the "syntactic-semantic" test, as many as twenty sentences (marked ∅ in the chart) were not decoded by the judges in the "pronunciation only" test, which lends support to our view that, in very general terms and on the basis of the restricted sample we

Table 15

Sentence number	Decoded Syntactic-semantic	Decoded Pronunciation Only	
1	+	+	
2	+	-	Ø
3	+	-	Ø
4	-	-	=
5	+	-	Ø
6	+	-	Ø
7	+	+	
8	+	-	Ø
9	+	+	
10	+	+	
11	+	+	
12	+	+	
13	+	-	Ø
14	+	-	Ø
15	+	-	Ø
16	+	+	
17	+	-	Ø
18	+	-	Ø
19	+	-	Ø
20	+	-	Ø
21	+	+	
22	+	-	Ø
23	+	+	
24	+	-	Ø
25	+	+	
26	+	+	
27	+	-	Ø
28	+	-	Ø
29	-	-	=
30	+	-	Ø
31	+	+	
32	-	+	*
33	-	+	*
34	-	+	*
35	+	+	
36	+	+	
37	+	+	
38	+	+	
39	+	+	
40	+	-	Ø
41	+	+	
42	+	+	
43	+	+	
44	+	-	Ø
45	-	+	*
46	+	+	
47	+	-	Ø
48	+	+	

Symbology:

+	decoded
-	not decoded
*	undecoded phonologically, but decoded in the "syntactic-semantic" test.
Ø	undecoded in the "syntactic-semantic" test, but decoded phonologically
=	undecoded in both tests

* = 4
Ø 20
= = 2

(22 utterances were decoded in both tests).

Table 15

CONTRASTED RESULTS OF THE "SYNTACTIC-SEMANTIC" AND THE "PRONUNCIATION ONLY" TESTS (THE TEXTS OF THE SENTENCES ARE GIVEN SEPARATELY, ON THE NEXT PAGES).

Texts of the "Syntactic-Semantic" Test

1. ? Peter was with his wife and there was a pipe with holes that were leaking.
2. ? He covered the holes with his fingers and with his nose.
3. ? He was in a kind of labyrinth.
4. ? In the garden a man is admire a beautiful girl.
5. • The sun is shining and the plants growing rapidly and he didn't see any more.
6. • Mrs Smith and his son were waiting a bus.
7. ? Near them there was water.
8. ? The bus wet them completely.
9. • A client enter to.a restaurant one day.
10. • He asked the waiter to bring a plate soup.
11. • After he had brought, the client saw a fly in the plate.
12. • The client ordered the waiter to bring another.
13. ? Mrs Brown was seeing TV.
14. ? She was seeing a magician.
15. • Instead of a rabbit appear a chair.
16. • At the same moment, Mrs Brown left sitting on the floor.
17. • A boy like a tall girl and he is short.
18. • He stay in the snow.
19. • He make a ball with the snow and jump off over here and gave her a kiss.
20. • There is a three firemen hard a canvass.
21. ? At the window there is a man.
22. • There was a couple who were watching a film of ghost.
23. They were enjoying the film.
24. • One of the ghost which appeared in the film was sitted in the post • of the girl.
25. ? A man who is in a restaurant with a beautiful girl is very happy.
26. • Suddenly he saw a woman who was his wife.
27. • He take a great vase which was on the floor.
28. The little vase was on the table before.
29. ? One day Mr Wilson was looking at a girl by means of a special lens of great length.
30. • At the moment he was looking he saw a great eye looking at him.
31. ? He took out the lens and saw facing him a fat woman.
32. • Mary was a fat woman so he decide to take a rub.
33. • John wasn't very happy because he had to take a rub him.
34. • But after a rub Mary doesn't low her weigh.
35. • So he decide to take again.
36. • But John looked at her very sad.
37. • Peter's wives order his husband to go work in the garden.
38. ? So she gave him a spade and rake.
39. • Instead of going working he instead detours.
40. He made a hammock to look at his beautiful neighbour.
41. • The mother is taking a photograph.
42. • The men who is taking the photograph look her and think he is very ugly.
43. • He order to her that she must put a clothes, a black clothes, over her head.
44. • Then he smiled and take a photograph.
45. • Is night. Jane and Tom are sleeping.
46. • In the midnight Jane is sleeping very well.
47. • His husband is angry because the clothes fell it.
48. • Then he sleep in the floor.

Texts of the "pronunciation only" test

1. • [pí:taŕ gwos gwis xis gwaif an deaŕ gwos e pai gwis xoul dat gwear líkin]
   (Peter was with his wife and there was a pipe with holes that were leaking)
2. • [xi: kóƀeŕed de xoul gwis xis fíngers an gwit xis nous]
   (He covered the holes with his fingers and with his nose).
3. • [xi: gwos in a kain of labirínt]
   (He was in a kind of labyrinth)
4. • [in de gáŕden a man is ađmáiŕin e byútiful gel]
   (In the garden, a man is admiring a beautiful girl).
5. • [de san is śainin an de plans aŕ gró:in řápiđli an xi: dí:din si: éni moŕ]
   (The sun is shining and the plants are growing rapidly and he didn't see any more)
6. • [mí:sih esmít an xer san gweŕ gwéitin foŕ e bas]
   (Mrs. Smith and her son were waiting for a bus)
7. • [ni:aŕ đem déaŕ gwos gwóteŕ]
   (Near them, there was water)
8. • [de ƀas gweđ đem kompli:tli]
   (The bus wet them completely)
9. • [e kláyen énteŕ e ɍéstoŕan gwan dei]
   (A client entered a restaurant one day)
10. • [xi áhkeđ đe gwéiteŕ tu brin e plei of su:pʼ]
    (He asked the waiter to bring a plate of soup)
11. • [áfteŕ xi: xađ brotʼ de su:ƀ / đe kláyen so e flai in de pleiđ]
    (After he had brought the soup, the client saw a fly in the plate)
12. • [de kláyen óŕdeŕeđ đe gwéiteŕ tu brin anáeŕ pleiđ]
    (The client ordered the waiter to bring another plate)
13. • [mísih bŕaun gwos gwośin ti:ƀí:]
    (Mrs. Brown was watching T.V.)
14. • [ći: gwos gwośin e magí:án]
    (She was watching a magician)
15. • [e śeaŕ apí:ŕ đihtéđ of e ɍáƀitʼ]
    (A chair appeared instead of a rabbit).
16. • [ađ đe sein tain / mí:sih bŕaun gwos lef sí:tin on de flóŕ]
    (At the same time Mrs. Brown was left sitting on the floor)
17. • [e ƀoi laig se tol gel / bat xi:s śo:tʼ]
    (A boy likes a tall girl but he's short)
18. • [xi: ehtéi đin desnóu]
    (He stayed in the snow)
19. • [xi: meiđ esnóu bol / źan ton to po fit / an géiƀeŕ e kis]
    (He made a snow ball, jumped on top of it, and gave her a kiss)
20. • [deaŕ aŕ tɍi: fáyeŕmen xu: xa ƀa kámbas]
    (There are three firemen who have a canvass)
21. • [deaŕ is a man ađ de gwíndou]
    (There is a man at the window)
22. • [dear gwos e kápel xu: gweaŕ gwaśin e fil mof gost]
    (There was a couple who were watching a film of ghosts)
23. • [dei gweaŕ enźoin de filn]
    (They were enjoying the film)
24. • [gwan of de goht gwiś apí:ŕ đin de filn gwos sítin in de gel pleis]
    (One of the ghosts which appeared in the film was sitting in the girl's place)
25. • [e man i:s i:n e ɍéstoŕan wis e byútiful gel an xi:s béri xápil]
    (A man is in a restaurant with a beautiful girl and he's very happy)
26. • [sáđenli xi: so a gwú:man // sí: gwos xis gwaiv]
    (Suddenly he saw a woman; she was his wife)
27. • [xi: tu: ke greitʼ ƀeis xwiś gwos on de floŕ]
    (He took a great vase which was on the floor)

28. • [de li:tel beis gwos on de téiƀel bifóŕ]
(The little vase was on the table before)

29. • [gwan dei mí:sta gwí:lsan gwos lú:kin a te gel bai mín so fespéŕal len sov greiđ leŋ]
(One day Mr. Wilson was looking at a girl by means of a special lens of great length)

30. •[ađ đe mómen xi: gwos lú:kin xi: so e greiđ ai lu:kin ađ xim]
(At the moment he was looking, he saw a great eye looking at him)

31. • [xi: tu: kauđ đe len san so féisin xim e fađ gwú:man]
(He took out the lens and saw, facing him, a fat woman)

32. • [méŕi gwos e fađ gwú:man / sou śi: đi:sáiđiđ tu teig a ɍaƀ]
(Mary was a fat woman, so she decided to take a rub)

33. • [źon gwósen béŕi xápi ƀikós xi: hađ tu giƀ đe ɍaƀ]
(John wasn't very happy because he had to give the rub)

34. • [bađ áfteŕ đe ɍaƀ méŕi đásen lóweŕ xer weit’]
(But after the rub Mary doesn't lower her weight)

35. • [sou śi: đisáiđ tu teig anáđeŕ ɍaƀ]
(So she decides to take another rub)

36. • [bađ źón lu:g tađ xer béŕi sádli]
(But John looked at her very sadly)

37. • [pí:tas gwai fórđeŕed xer xásban tu gou gweŕk in de gáŕđen]
(Peter's wife ordered her husband to go and work in the garden)

38. • [sou śi: geiƀ xim e speiđ an e ɍeig]
(So she gave him a spade and a rake)

39. • [in:téđ of góin tu weŕg xi: di:tú:aŕđ]
(Instead of going to work, he detoured)

40. • [xi meiđ e xámog an lu:g tađ xis byútiful néiboŕ]
(He made a hammock and looked at his beautiful neighbour)

41. • [de máđeŕ is téikin a fótograv]
(The mother is taking a photograph)

42. • [de man xu: is téikin de fótograv lu:k sađ xer an ṣink śi:s béri ágli]
(The man who is taking the photograph looks at her and thinks she is very ugly)

43. • [xi: órđeŕed xeŕ tu: pu: ta blag klo sóuƀa xeŕ xeđ]
(He ordered her to put a black cloth over her head)

44. • [den xi:s máil dan tu:g đe fótogŕav]
(Then he smiled and took the photograph)

45. • [i:t i:s náitaim // źein an ton aŕ eslípin]
(It is night-time; Jane and Tom are sleeping)

46. • [ađ mídnaiđ źein gwos eslí:pin béŕi gwel]

47. • [xeŕ xásban gwos ángri ƀi:kós de klous fel]
(Her husband was angry because the clothes fell)

48. • [den xi: slep ton de floŕ]
(Then he slept on the floor).

analyzed, pronunciation errors seem to be more critical to intelligibility than either syntactic or semantic errors (P = 1% by Fisher's "chi-squared" test)[44].

Appendix C contains the texts employed and the results obtained in the "isolated error" tests, consisting of four tapes.

PHONOLOGICAL ERRORS

We are using the term "phonological" in the sense of "anything having to do with pronunciation." We consequently deal, in this section, with errors affecting the "segmental phonemes" (vowels and consonants), the "supra-segmental phonemes" (stress, intonation, and pause), and related phenomena such as extreme reduction and epenthetic syllables.

In each sub-section we provide a simplified description of the RP systems and the Santiago Spanish systems, list the errors usually predicted by contrastive analysis (i.e., due to interlinguistic interference), and match them with the errors actually found in our sample, stating whether the latter were or not critical to intelligibility. Some conclusions and pedagogical considerations are suggested throughout each section, and, particularly, at the end of each chapter.

Vowels

RP English is usually described on the basis of a twelve-vowel system (Jones, 1948; Gimson, 1965), whereas Spanish possesses only five vowel phonemes (Quilis y Fernández, 1971; Real Academia Española, 1973):

English (RP)	Spanish (all dialects)
i: u:	i u
i ə u	
e ə: o	e o
ae ʌ ɔ	
a	a

If we assume this to be correct, then we have here a major problem area, already at the "phonemic" level, for the Spanish speaker who learns English; indeed, we may predict both receptive and productive difficulties for all the English vowels because of the multiple contrasts which they present (e.g., i/i:, i/e, e/ae, ae/a, a/o, a/e, e/ə, u/e, ə/i, a/ʌ, ə/ʌ, e/ə:, ə:/ʌ, a/ɔ, ɔ/o, o/ʌ, u/u:) and which are absent from the Spanish vowel system.

A description of the allophones would certainly go beyond the objectives of this thesis; a few remarks, however, can be made. Both English and Spanish have long and short vowel allophones, but their conditioning is different: while the determining factor in English is the voiced or voiceless nature of the consonant that follows the vowels, in Spanish length depends on whether the vowel occurs in an open or in certain types of closed syllables. We can consequently predict that the speaker of Spanish will have difficulty with all the allophones of English where length is the defining feature.

On the other hand, there is a very strong tendency in Chilean Spanish for unstressed vowels to become voiceless[45] in speech other than elaborate "largo" (Harris, 1969; Wigdorsky, forthcoming). This may be an aid in the pronunciation of English /ə/, but it is also the cause of the error we have termed "extreme reduction," which is being dealt with in our chapter on criticality.

Other kinds of vocalic allophones, such as the nasalized allophones, seem to have fairly similar conditionings in both languages.

The above predictions, however, were only partially confirmed by our data. In the case of the seventeen vowel contrasts mentioned in the fifth paragraph of this subsection, only thirteen appeared in our sample (i/i:, i/e, e/æ, æ/a, a/^, e/ə:, a/ɔ, o/ɔ, u/u:, ə/i, i:/e, a/ə and e/ə); of these, only four contrasts were critical to intelligibility --a/æ, a/ɔ, o/ɔ, and ə:/e, as in "rapidly," "John," "brought" and "had," respectively.

Allophonically (i.e., "phonetically"), only the following errors appeared in our sample:

1. [e:] for [e], as in "wet" (one case)
2. [ö] for [e], as in "held" (one case)
3. [o^] for [o], as in "hot" (two cases)
4. [a::r] for [a], as in "hard" (one case)
5. [a::] for [a], as in "garden" (one case)
6. [ă] for [a], as in "father" (one case)
7. [ŏ] for [o:] or [oə], as in "floor" (one case)
8. [ə] for [^], as in "mother" (one case)
9. [ö] for [ə:], as in "girl" (one case),

only numbers 1, 2, 3 and 4 proving critical to intelligibility. Most of these errors (Nos. 1, 5, 6, 7, 8, and possibly 9) are clearly interferential; No. 2 is presumably due to spelling (which is interference of another kind), while --for the time being-- the only thing we can say about Nos. 3 and 4 is that they are idiosyncratic.

It will be observed that "phonetic" (i.e., allophonic) errors were just as numerous, as classes, as "phonemic" errors.

The fact may be also observed that as many "phonetic" errors as "phonemic" errors proved critical to intelligibility. This seems to challenge orthodox "distributionalist" views concerning the perceptual (and didactic) precedence of "phonemic" issues over "phonetic" ones.

It is worth pointing out that two errors usually predicted for Spanish speakers did not appear in our sample, namely, /o/ for /ɔ/, and /ə/ for /əː/; the former, though common in most Spanish speakers learning English, rarely appears in Chileans; and the latter is of limited occurrence because of the Spanish speaker's tendency to realise /əː/ as [ə] + R[46]. Some considerations about /ə/ --more specifically, [ə]-- are being made in the section dealing with the relative criticality of stress and reduction.

In addition to its twelve "pure" vowels, RP presents the following diphthongs, phonemically: /ei/, /ai/, /oi/, /əu/ or /ou/, /au/, /iə/, /eə/, /oə/ or [oː!, [iu], and /uə/. Of these, only /ei/, /ai/, /oi/, /iu/ and /au/, coincide in Spanish, although Spanish /ia/ and Spanish /ua/ may be considered phonetically close to English /iə/ and /uə/. Consequently, we may expect difficulties with the production (and perception) of English /əu/ (or /ou/).

The following errors affecting diphthongs appeared in our sample:

1. /o/ for /əu/, /ou/, as in "post" (nine cases)
2. [eu] for /əu/, /ou/, as in "boat" (one case)
3. /ou/ for /o/, as in "cloth" (one case)
4. /iː/ for /iə/, as in "fear" (one case)
5. [ȏa] for [oː] or [oə] as in "floor" (one case)

Only the first of these errors proved critical to intelligibility; it also proved far the most frequent, with nine occurrences.

Errors numbers 1, 2, 3 and 5 are clearly interferential (etiologically or strategically); for error 4 we have to satisfy ourselves, for the time being, that it is idiosyncratic.

The similar degree of criticality of "phonemic" and "phonetic" errors, as well as the divergent phonetic realizations of liphthongs (e.g., [ou] ~ [əu]; [oə] ~ [oː]; [uə] ~ [oː]), does not seem to support the phonemic/phonetic dichothomy. The relatively small number of errors obtained in our sample and the even smaller proportion of critical errors seem to indicate that the number of vowel phonemes theoretically postulated for English is excessive. The theoretical approaches that --for SA, at least-- reduce the number of vowels to seven (e.g., Stockwell and Bowen, 1965) seem to be closer to the facts, having the additional advantage of showing regularities and systematic correspondences where we otherwise detect dialectal peculiarities which can be accounted for rather vaguely on diachronic terms[17]. Similarly, many realizations seem to be better explained as the results of phonological processes (Alarcos Llorach, 1974; Chomsky and Halle, 1968; Jakobson and Halle, 1956) and/or "deep forms" (Chomsky and Halle, 1968) than as static allophones.

The fact is worth mentioning, at this stage, that one of the characteristics of foreigners' interlects of English is, besides the effects of interference and the paucity of phatic elements, a tendency to combine major dialects of English, mainly RP and SA. This, however, does not seem to affect intelligibility significantly (at least on the phonological level). Thus, for example, nowhere /ou/, typical of SA and more traditional forms of RP, fails to be interpreted as /əu/, nor /ə/ + R to be interpreted as /əː/, while indiscrimination between /u/ and /uː/, typical of the Scottish dialects, is definitely not critical to intelligibility.

In Table 16, below, we provide a summary of the level of criticality of the different errors affecting the English vowels which appeared in our sample.

Of a total of twenty-three types or subtypes of errors affecting vowels, six (26 per cent) proved critical and three (13 per cent) partly critical to intelligibility[48]. High as the intelligibility threshold may appear, yet errors affecting the vowels are among the most relevant to the problem under discussion --which is only natural, because of the limited number of vowels and their nuclear function.

Appendix C displays the texts of the "isolated error" tests, together with the charts with the results obtained.

Table 16

	Occurrences	Wholly critical	Partly critical	Non-critical
1.1 /i:/ for /i/	8			x
.2 /i:/ for /e/	1			x
.3 /i:/ for /iə/	1			x
2.1 /e/ for /ə/	4		x	
.2 [e:] for [ə:]	[illegible]			x
.3 [ĕ] for [e]	1			x
.4 [e:] for [e]	1	x		
3.1 /a/ for [ʌ], [ə]	4			x
.2 [a::] for [a]	1	x		
.3 [a:] for /o/	1	x		
.4 /a/ for /æ/	4	x		
4.1 /o/ for /ou/, /əu/	9		x	
.2 [ơ] for [ɔ]	2		x	
.3 [ŏ] for [o:]	1			x
5. /oa/ for [o:], /oᵊ/	1			x
6. /ou/ for /o/	1			x
7.1 [ö] for [ə:]	1			x
.2 [ö] for /e/	1	x		
8. /eu/ for /ou/, /əu/	1			x
9. ./u:/ for /u/	3			x
10.1 /ə/ for /i/	2			x
.2 [ə] for [ʌ]	1			x
11. /ə:/ for /æ/	2	x		
Totals		6	3	14

Table 16

INVENTORY AND RELATIVE LEVEL OF CRITICALITY OF THE ERRORS AFFECTING VOWELS

Consonants

Spanish (particularly, American Spanish) has fewer autonomous consonantal phonemes than English:

English[49]

m		n				ŋ	
p		t				k	
b		d				g	
	f	θ	s	ś			h
	v	đ	z	ź			
				ć			
				j́			
		l					
w		r			y		

American Spanish[50]

m		n		ŋ		
p		t				k
b		d				g
	f		s			x
				ć		
		l				
w		r			y	
		r̃				

The fact that the phonetic realizations of the congruent phonemes is --naturally-- different in both languages (e.g., the stops, the sibilants, the liquids, /r/) has led to the prediction of interference and, consequently, of lack of intelligibility. We maintain that while the former is generally true, the latter is not so serious as implied, mainly because the consonants --as it is well known-- carry a lower information potential than do the vowels. Also, the action of the phonological processes and considerable idiolectal, dialectal, and speed varieties contribute to reduce the effects of allophonic discrepancies on general intelligibility by natives. The phonetic realization of English /r/ --even systematic, or "deep" |r|, as in "bird" or "car"-- by foreign speakers constitute a good example of this: whether pronounced with a German, a French, a Hindi or a Spanish "accent" it will only rarely fail to be perceived as such by most --or all-- native RP listeners.

The following "phonemic" problems are usually predicted by comparing both systems:

1. Failure to hear and produce English /h/
2. Failure to distinguish between English /b/ and English /v/

3. Failure to distinguish between English /đ/ and English /d/
4. Failure to distinguish between English /θ/ and English /s/
5. Failure to distinguish between English /s/ and English /z/
6. Failure to distinguish between English /š/ and English /č/
7. Failure to distinguish between English /s/ and English /š/
8. Failure to distinguish between English /š/ and English /ž/
9. Failure to distinguish between English /ž/ and English /č/
10. Failure to distinguish between English /ž/ and English /ǰ/
11. Failure to distinguish between English /ǰ/ and English /y/
12. Failure to distinguish between English /b/ and English /w/
13. Failure to distinguish between English /n/ and English /ŋ/
14. Substitution of [x] for /h/
15. Word final and "absolute" final positions of all the English consonant phonemes, except /n/, /đ/, /s/, /l/, and /r/, but these will

present serious "phonetic" (i.e., allophonic) problems.

16. All the English consonant clusters, except initial /pl/, /pr/, /tr/, /kl/, /kr/, /bl/, /br/, /dr/, /gl/, /gr/, /fl/, and /fr/.

Spanish consonants are --as may be inferred from the predictable problems listed above-- severely limited in distribution; although the canonical forms of the Spanish syllable are V, CV, VC, CVC, CCV, CCVC, (CC)VC_1C_2 (the last one usually becoming (CC)VC_2), there is --as in the remaining Romance languages-- a marked preference and tendency for the open syllable, viz., CV, V and --less frequently-- CCV. The consonants that may close internal syllables (/m/, /n/, /p/, /d/, /s/, /l/, and /r/) undergo, when realized, many changes, usually towards voicing, friction, aspiration, or assimilation (occasionally to the point of gemination) to the following consonant. Thus, for example, doctor, "doctor", /doktór/, may be realized as [dogtóŕ], [doxtóŕ], [dohtóŕ], or [dot:óŕ], these allophonic forms appearing, with varying individual frequencies, in virtually every Spanish dialect. On the other hand, aspiration and progressive assimilation --which are processes of consequence in the phonology of English-- hardly operate in Spanish. As a result of all this, the following "phonetic" (i.e., allophonic) errors are usually predicted for the Spanish speaker who learns English:

1. Failure to aspirate the voiceless stops in the required positions
2. Frictioning of the voiced stops in intervocalic position
3. Frictioning or aspiration of "absolute" final /d/
4. Aspiration of final and preconsonantal /s/
5. Voicing and/or friction, aspiration, or assimilation of voiceless stops in preconsonantal position
6. Regressive assimilation, as to point of articulation, of the nasals to any consonant that immediately follows them in the "spoken chain"
7. Insufficient tenseness of English /ć/ (Spanish /ć/ is rarely a true affricate)
8. Failure to produce "dark" /l/
9. Failure to produce all the allophones of English /r/, except the fricative and the "one-tap" allophones.

Many of the allophonic errors mentioned above (and the list is certainly not exhaustive) have "phonemic" consequences and may be expected to present serious obstacles to comprehension by native speakers of English --or by foreigners to English whose background is not Spanish.

Virtually all these errors --both "phonemic" and "phonetic"-- did appear, under one form or another, in our sample. Only three, however, proved critical to intelligibility:

1. /g/ for /ŋ/, as in * /brig/, "bring"
2. /s/ for /z/, as in * /ˈri:əlais/, "realize"
3. /s/ for /θ/, as in * /klos/, "cloth"

The /s/-/z/ contrast proved only marginally critical, as it was decoded by 54 per cent of the judges in the environment -l ___# (e.g., "holes") and by 73 per cent, average, of the judges in the environment -V ___# (e.g., "realize", "detours").[51]

Also critical to intelligibility proved the deletion of the following consonants, as in these cases:

1. Ø for /đ/, as in * /ənáer/, "another" (whol-

ly critical)

2. Ø for /v/, as in * /gei/, "gave" (wholly critical)
3. Ø for /k/, as in * /tei/, "take" (partly critical)
4. Ø for /n/, as in * /istéd/, "instead" (wholly critical)
5. Ø for /m/, as in "Mr.," * /ístə/ (wholly critical)
6. Ø for /w/, as in * /huː óz/, "who was" (partly critical)

This kind of error is quite likely, we believe, to have semantic (specifically lexical) consequences as, in the absence of insufficient context, * /gei/, for "gave," could be interpreted as "gay," and * /tei/, for "take," would certainly puzzle the listener.

Partly critical proved the failure to make the phonetic contrast [s̥]-[s], decoded by 80 per cent of the judges in the case of "smiled" but by only 50 per cent of the judges in the "dictation" test (100 per cent in the "syntactic-semantic" test), in the case of "snow."

Also partly critical proved the failure to make the phonemic contrast /θ/ - /s/ where the contexts were as follows,

1. -V ___#, as in * /bʌθ/, "bus" (100 per cent decoded)
2. -n ___ C, as in * /inθtéd/, "instead" (100 per cent decoded)
3. -n ___#, as in * /lenθ/, "lens" (0 per cent decoded).

It will be observed that the English sibilants seem to present a major intelligibility problem for our Chilean-Spanish speakers; thus, of the failed contrasts which appeared in our sample --/s/ - /θ/, /s/ - /z/, and /ć/ - /ś/-- only the last one proved clearly non-critical (and at an 80 per cent decoding level, which is rather near our 70 per cent threshold). Absent from our sample were the contrasts envolving English /ź/ which, we have reason to believe, would have also proved critical (e.g., "pleasure" as * /pléśə/, * /pléćə/, or even * /plésə/).

In fact, most of the well-known interference points did not prove critical to intelligibility in our research; phonemically,

1. /b/ for /v/, as in "vote" * /bəut/
2. /v/ for /f/, as in "wife" * /waiv/
3. /t/ for /d/, as in "door" * /toə/
4. /g/ for /k/, as in "look" * /lug/
5. /g/ for /j́/, as in "magician" * /magíśən/
6. /n/ for /ŋ/, as in "sing" * /sin/
7. /ŋ/ for /n/, as in "Wilson" * /wílsəŋ/
8. /θ/ for /s/, as in "instead" * /inθtéd/
9. [x] for /h/, as in "him" * /xim/
10. /ć/ for /ś/, as in "chair" * /ćeə/
11. /ḋz/ for /θ/, as in "cloth" * /kloḋz/
12. /gw/ for /w/, as in "Wilson" * /gwílsən/

And phonetically, such usual "scarers" as

1. [ƀ] for [v], as in "over" * [ə́uƀə]
2. [t̚] for [t], as in "boat" * [bəut̚]
3. [k̚] for [k] or [kʰ], as in "taking" * [téik̚iŋ] and "take" * [teik̚]
4. [ɾ́] for [ɹ] or [Ø], as in "over" and "garden"
5. Ø for /d/, as in * /hʌ́sbən/, "husband"

and not so usual "scarers" as,

1. [b̥] for [b], as in "black" * [b̥læ k]

2. [d̥] for [d], as in "husband" * [hʌ́sbənd̥]
3. [kʰ] for [k], as in "different kinds" *[difrənt˺ kʰaindz]

Three items in the above list deserve special attention. First, that /k/ - /g/, /t/ - /d/, and /n/ - /ŋ/ are members --both in English and Spanish-- of the archiphonemes |K|, |T|, and |N|, respectively; the fact that mispronunciation in these areas does not produce intelligibility problems seems to lend empirical support to this artifact of the Prague School. Secondly, that incomplete release and devoicing of stops does not seem to be critical to intelligibility. And, thirdly, that although [x] for /h/ proved remarkably non-critical (100 per cent decoded by 15 judges), yet [xuːz] for /huːz/, "who's," was interpreted as "whose" in a couple of cases, which --because of the absence of /hw/ in RP-- presents an interesting interdialectal problem.

Also non-critical proved the unnecessary insertion of /d/, as in * /mǽrid/, for "Marie."

If we consider the considerable attention which is frequently given to them in pedagogic literature, the absence from our sample of the following contrasts was quite surprising:

1. [ƀw] for [w], as in * [ƀwíntə], "winter"
2. /y/ for /ǰ/, as in * /yim/, "Jim"
3. /ǰ/ for /y/, as in * /ǰélou/, "yellow"
4. [illegible] for /h/, as in * /ed/, "head"

Of the above list, mainly because [ƀw] presents addition rather than substitution of a sound, and deletion of /h/ is a common feature of most substandard forms of English, perhaps only /y/ - /ǰ/ and /ǰ/ - /y/ might prove critical to intelligibility in a more extended research work.

In Table 17, below, we provide a summary of the level of criticality of the consonantal errors found in our sample.

Out of a total of thirty-six types or subtypes of errors, only seven (20 per cent) proved clearly critical to intelligibility and five (14 per cent) proved partly critical; twenty-four types, on the other hand, proved non-critical[32]. Because of the larger number of consonants and their relative distributional predictability, when compared to vowels, it is not surprising that they proved less critical to intelligibility[53]. In spite of their predictability and relatively scarce information value, the intelligibility threshold of consonants is --we shall soon be able to see-- much lower than that of syntax.

Interference does seem to play an important role in the generation of phonological errors, at least in those affecting the segments. Non-interferentionally originated errors (such as "slips of the tongue," for example) are quite likely to have extra-linguistic systematic etiologies, as suggested since Freud (1951).

Appendix C displays the data concerning the different "isolated error" tests and summarizes and relates such data; it also provides the corresponding texts.

Table 17

	Occurrences	Wholly critical	Partly critical	Non-critical
1.1 /b/ for /v/	2			x
.2 [ƀ] for /v/	1			x
.3 [b̥] for [b]	1			x
2.1 /v/ for /f/, final	1			x
.2 Ø for /v/, final	1	x		
3.1 Ø for /d/, medial	1	x		
.2 Ø for /d/, final	6			x
.3 /d/, intrusive	1			x
.4 /d/ for /ð/	9			x
.5 [d̥] for [d]	2			x
4.1 /t/ for /d/	4			x
.2 Ø for /t/, final	5			x
5.1 Ø for /k/, -V___#	2		x	
.2 Ø for /k/, -/n/___#	1			x
.3 [kʼ] for [kʰ] / [k]	5			x
.4 [kʰ] for [k]	1			x
6.1 [g̊] for [kʰ] / [k]	2		x	
.2 /ɣ/ for /n/	1			x
.3 /g/ for /ǰ/	1			x
7.1 Ø for /n/, medial	1			x
.2 /n/ for /ŋ/	6	x		
8. /ŋ/ for /n/	1			x
9. Ø for /m/, initial	1	x		
10.1 [ŕ] for [ɹ] / Ø, final	4			x
.2 [ŕ] for [ɹ] / Ø, medial	1			x

Continued

Table 17

INVENTORY AND RELATIVE CRITICALITY OF THE ERRORS AFFECTING THE CONSONANTS

Table 17 (Continued)

	Occurrences	Wholly critical	Partly critical	Non-critical
.3 [r̃] for [ɹ], initial	1			x
11. /θ/ for /s/, -V___#	4		x	
12.1 /s/ for /θ/, -V___#	1	x		
.2 [s̥] for [s], initial	2		x	
.3 /s/ for /z/, -C___#	2	x		
13. [x] for /h/, initial	15			x
14.1 Ø for /w/, initial	2		x	
.2 [gw] for /w/, initial	1			x
15. /č́/ for /ś/, initial	1			x
16. /đz/ for /θ/, -V___#	1			x
17. Ø for /đ/, V___V	1	x		
Totals	92	7	5	24

Notes:

1. An error was considered non-critical when decoded by 70 per cent or more of the judges, and partly critical when --on the average-- it was decoded between 50 and 69 per cent of the judges.
2. Non-diacritically notated allophones are to be understood as the complements of the diacritically marked allophone(s), in each pair or set.

Ref. Table 16

Table 17

INVENTORY AND RELATIVE CRITICALITY OF THE ERRORS AFFECTING THE CONSONANTS

Prosodical and Related Aspects

The prosodic aspects of English and Spanish are extremely complex as a consequence of their connotational, non-propositional relevancy. On the "etic" level, at least, this is also reflected in extreme inter- and even intra-dialectal variability. This has resulted in several models and descriptions that coincide in very few points. Because of this, our description and discussion of the prosodic errors in our sample is restricted to "emic" contrasts.

Both English and Spanish intonation can be described in terms of four significant pitch levels (Pike, 1945; Quilis y Fernández, 1971),

1	extra-high
2	high
3	neutral
4	low

Both languages have similar "contours," or combinations of these pitch levels (e.g., 2-3, 3-2, 2-4, 1-4), and in both languages these contours are "phonemic" in utterance final position only (but not always), in the sense that it is in this position that they are relevant to the "structural meanings" question, statement, request, and exclamation. Unfortunately, we are not in a position to deal, in this work, with connotational or extra-propositional meanings such as admiration, doubt, sarcasm, politeness, and other "attitudes" or "states of mind."

The single important "phonemic" difference is that, in Spanish, "Yes/No" questions are signalled exclusively (in oral language, of course) by the 3-2 intonation contour. It is not surprising, therefore, that our sample revealed only four intonation errors, all of them non-critical to intelligibility:

-- Contour 3-2 for contour 2-4 , as in the statement,
"* The eye was looking at$_3$ him$_2$" (two errors)

-- Contour 3-2 for contour 2-3, as in the conjoined statement,
"* She slept on the$_3$ floor$_2$ and..." (one error)

-- Contour 3-4 for contour 2-4, as in
"* She was v$\underline{\text{ery}}_3$ $\underset{\llcorner 4}{\overline{\text{sad}}_4}$" (one error)

-- Non-lengthening of cadential vowel in final monosyllable, as in
"* Steven smiled at her very$_3$ $_2$ sad$_4$"

Of the above errors, only the last one (which is "phonetic") is the result of interference from Santiago Spanish, which contributes to the suggestion that Spanish intonation does not differ significantly from the intonation of English.

These findings seem to be in conflict with the great importance which is given to intonation in most courses of English as a foreign language --whether oriented to the Spanish speaking learner or, as it is frequently the case, to the general learner.

Intonation is closely related to stress (Chomsky and Halle, 1968; Harris, 1969), which is also given considerable attention in courses of English as a foreign language. Exclusively for practical reasons, we make a distinction between "word stress" and "group/sentence stress." The results of our "dictation" and "confirmation" tests do not permit us to state that group/sentence stress is undoubtedly critical to intelligibility. Of a total of eight errors --all of them of stresses on normally weak forms, such as object pronouns or linking verbs-- four proved critical to intelligibility. Their inventory was the following (the percentage figures of the judges decoding each sentence in the "dictation" test and, when necessary, in either of the "confirmation" tests is given, in that order, with each sentence):

1. * John looked at hér eagerly (20%, 100%)

2. * There was water near thém (67%, 90%)
3. * I gave hím a book (42%, 100%)
4. * A man who ís in a restaurant... (33%, 90%)
5. * The book which wás on the floor... (twice, 29% and 80%)
6. * (They got to a place) whére thére wére ghósts (90%, dictation test)
7. * He couldn't eat that óne (75%, dictation test)
8. * (He saw a big eye) very near hím (92%, dictation test)

In sentences 1 through 5 we find a striking difference between the percentages of judges decoding in the "dictation" test (always a low figure, certainly below what we have considered the intelligibility threshold) and the percentages decoding in either of the "confirmation" tests (figures well above our intelligibility threshold); this clearly suggests that group/sentence stress is only partly critical to intelligibility, in these cases. On the other hand, the decoding percentages given for sentences 6, 7, and 8 clearly suggest that stress was not critical in their case.

On balance, this shows that group/sentence stress is only partially critical to intelligibility.
Stressing linking "be" proved unequivocally critical,

while stressing expletive "there" proved clearly non-critical (to judge from the data in our sample); where doubt as to criticality arises is in the (non-emphatic) stressing of object pronouns.

Group/sentence stress becomes quite important in a Spanish speaker's decoding of native English, a problem that transcends the limits of this work.

The Spanish speaker's difficulties with grasping English group stress --and, in general, English rhythm-- is largely due to interference, as vowel reduction is highly restricted in most dialects of Spanish, the Santiago dialect included[54].

As in English, word stress is "phonemic" in Spanish, with a tendency for it to fall on the penultimate syllable, except in words ending in vowel, /n/, or /s/; otherwise, the tendency is for the stress to fall on the last syllable of a word (specific rules account for paraxitone and preparaxitone words and, morpho-phonologically, relate stress to syntax). These tendencies are the cause of frequent interference between Spanish and English, which seems to present a more complex system of stress rules mainly because of the diversity (as compared with Spanish) of consonants which can close a word.

All six errors found in our sample proved partly critical to intelligibility; this is shown by the fact that, while all of them were remarkably low as to the percentage of judges decoding them in the "dictation" test (the first figure shown after each instance listed below), the percentage of judges decoding them in either of the "confirmation" tests (second figure shown) was always well above our intelligibility threshold

1. Primary stress (* /di:túəz/ and * /læbrinθ/), 9% and 85%, averages
2. Secondary stress (* /dí:tûəz/ and * /kǽnvʌ̂s/), 36% and 95%, averages
3. Reversal of primary stress and secondary stress (* /mîdnáit/), 58% and 100%.

In this case, errors causing difficulty for Spanish speakers in "being decoded" by native speakers of English, coincide with the weakest points a Spanish speaker has when it comes to his decoding native English. As we have seen and shall continue to see, this coincidence is far from frequent.

Pause is closely related to stress, particularly to group/sentence stress. We found only one error affecting it, proving not critical to intelligibility

"* ... and // there was a pipe that was leaking."

We wish to repeat here that pitch, stress and pause are intimately linked, both in English and Spanish, and that they should consequently be treated in conjunction.

Pause is also closely related to vowel reduction ("weakening") and abbreviation ("short forms"); because weakening is less generalized in Spanish than in English, Spanish speakers tend to use the English full forms where most native English speakers would prefer the corresponding short forms. We did, in fact, find three such errors in our sample, but none of them proved critical to intelligibility,

(?) He thinks /hi: iz/ very ugly

(?) The man /hu: iz/ taking the photograph...

(?) A man /hu: iz/ in a restaurant...

Conversely, extreme reduction did prove comparatively critical to intelligibility (four out of six cases), a rather high proportion; the percentages of judges decoding in the "dictation" test and in the "syntactic-semantic" test is given, in that order, with each utterance:

-- (?) Peter was with his wife [n] there was a pipe that was leaking (0% and 100%)

-- ... and there's a fire (25% and 80%)

-- The firemen had a canvass (25% and 80%)

-- (?) A boy likes a tall girl and he's short (8% and 100%)

The sharp difference between the decoding percentages in the "dictation" test and in the "syntactic-semantic" test clearly evidences the intelligibility relevancy of the errors listed above. The non-critical instances of this type of error were

-- (He jumped on the snowball) and gave hĕr a kiss

-- The firemĕn are very surprised

both decoded by 75 per cent of the judges in the "dictation" test. Excessive or extreme reduction becomes one of the most interesting errors from the viewpoint of intelligibility, particularly because it does not originate in interference (as we have already said, vowel reduction is severely constrained in most dialects of Spanish, including the dialect of Santiago[54]) but rather in over-teaching or in exaggerating a point where the Spanish speaker is aware he may have (and usually does have, receptively) trouble in his productive use of English. If we compare the consequences of this kind of error with those for the converse problem, wrong group/sentence stress, we find that --from the point of view of the English speaking listener-- our foreign speaker is more likely to have intelligibility problems as the result of exaggerating a contrastive point rather than by overlooking it.

In addition to the errors already described under relatively orthodox headings, we found four instances of what we have termed "intrusive syllables," (epenthetic syllables) all of which turned out to be critical to intelligibility, thus revealing a contrastive point not mentioned --that we know-- in the specialized literature. They were the following,

labyrinth	* /lǽbirinθ/
labyrinth	* /lǽbərinθ/
labyrinth	* /lábirinθ/
didn't	* /dídint/

The wrong instances of "labyrinth" are mere cases of interference with Spanish laberinto; the fourth case has greater phonological importance since it is the consequence of the impossibility for Spanish to have /d/ followed by /n/, even across syllable boundaries.

In general, epenthetic syllables ("intrusive syllables") originate in the Spanish restrictions on the combinations of consonants and its preference and tendency for open syllables.

Inserting an "intrusive syllable" is a fairly common error by Spanish speakers, who will insistently add a syllable in words like "lavatory" * /lǽvətori/, "restaurant" * /réstorənt/, "interesting" * /ínterestiŋ/ and so on, particularly in words of Latin origin. This error presents the highest intelligibility risk in pronunciation.

Table 18, below, summarizes what we have said concerning errors affecting the supra-segmental, or prosodic aspects.

Table 12

	Occurrences	Wholly critical	Partly critical	Non-critical
1. Intonation				
1.1 3-2 for 2-4	2			x
1.2 Non-length. of final V	1			x
1.3 3-4 for 2-4	1			x
1.4 3-2 for 2-3	1			x
2. Group/sentence stress				
2.1 Objective pronouns stressed	5		x	
2.2 "Be" stressed	2	x		
2.3 Expletive 'there' stressed	1			x
3. Pause and reduction				
3.1 Unnecessary pause	1	x		
3.2 No 'abbreviation'	3			x
3.3 Extreme reduction	6		x	
4. Word stress				
4.1 Primary stress	3		x	
4.2 Secondary stress	2		x	
4.3 Reversal primary sec. stress	1		x	
5. Intrusive syllable	4	x		
Totals		3	5	6

Table 12

INVENTORY AND RELATIVE CRITICALITY OF THE ERRORS AFFECTING
THE SUPRA-SEGMENTAL PHONEMES

Concluding Remarks

An examination of the distribution of the major types of phonological errors, as on Table 19 below, --and phonological errors appear to be more critical for intelligibility than either semantic or syntactic errors-- reveals, if we consider partly critical and wholly critical types as members of a set, "critical," the following ranking of criticality for intelligibility,

1. Errors affecting word stress
2. Errors of "intrusive syllables"
3. Errors affecting group/sentence stress
4. Errors of pause and reduction
5. Errors affecting the consonants
6. Errors affecting the vowels
7. Errors of intonation

It will be observed that there is no correlation between the above ranking for criticality and the ranking for frequency of types of errors ($p > .10$ $r_s = .541$) or the ranking for tokens of errors ($p > .10$ $r_s = .227$). This is hardly surprising because vowels and consonants, which constitute the most frequent types of errors, are --because of the tight systems in which they operate-- the ones more likely to be re-interpreted in cases of poor communi-

Table 19

	Total types		Wholly critical		Partly critical		Non-critical		Tokens	RANKINGS Criticality	RANKINGS Frequency (tokens)
	N	%	N	%	N	%	N	%			
Consonants	36	49.3	7	19.4	5	13.9	24	66.7	92	5	1
Vowels	23	31.5	6	26.1	3	13.0	14	60.9	52	6	2
Intonation	4	5.4	-	0.0	-	0.0	4	100.0	5	7	6
Group/sentence stress	3	4.1	1	33.3	1	33.3	1	33.3	8	3.5	4
Word stress	3	4.1	-	0.0	3	100.0	-	0.0	6	1.5	5
Pause, abbreviation, reduction	3	4.1	1	33.3	1	33.3	1	33.3	12	3.5	3
Epenthetic syllable	1	1.4	1	100.0	-	0.0	-	0.0	1	1.5	7
Totals	73	100.0	16	21.9	13	17.8	44	60.3	176	-	-

Table 19

SUMMARIZED CRITICALITY OF MAJOR TYPES OF PHONOLOGICAL ERRORS cation.

The high ranking of word stress comes as a surprise, particularly because of the fact that English stress is not only predictable (Chomsky and Halle, 1968) but also because it behaves very much like Spanish stress. Our more interesting findings, however, seem to be that the intervention of an "intrusive syllable" is a highly critical error, while the use of wrong intonation is hardly critical at all for intelligibility.

The pedagogical implications of these findings (albeit provisional) appear to be that in teaching productive oral English to Chilean learners, whose aim is not to become language professionals, we should devote more time to stress, pause and "reduction," and worry slightly less about the vowels and --particularly-- intonation. The teaching of consonant clusters should also be a major concern because of their effect on stress and epenthetic syllables. We can also conclude that "over-teaching," as in the case of "extreme reduction," may have deleterious consequences.

On a less practical level, we may conclude that the mainly "distributionalist" model we have employed does not seem to be entirely satisfactory in research of this kind. The evidence points, as in the case of the segments, to the need to use more dynamic models. It is apparent that for English and Spanish --at least-- pitch, intensity, pause (and possibly length) should be treated under a single heading and related by a common set of rules (Chomsky and Halle, 1968; Harris, 1969, 1975).

SYNTACTIC ERRORS

English and Spanish use the same set of "formal devices" but they do not use them for exactly the same purposes, nor do they coincide in the ranking of preferences --"word order" ranks first in English but last in Spanish, while affixation and intonation rank relatively low in English but high in Spanish. As to purpose or "structural meaning," English --for example-- uses a function word to signal "simple future" while Spanish employs a set of endings for the same purpose[55]; and --to give another example-- while Spanish signals an animate "direct object" with a function word[56], English makes no exception in signalling "direct objects" by means of "word order"; illustrating from another point of view, English is polymorphistic where Spanish is not (e.g., the plural, the passive, the "possessive" or "genitive").

Contrastive analyses (e.g., Stockwell and Bowen, 1965) usually predict the following main syntactic problems for the Spanish speaker learning

English:

1. Auxiliary "do" (questions, negations, and emphasis)
2. The modal auxiliaries, particularly in the expression of the future and the conditional
3. The passive voice (especially with the "beneficiary" in subject position)
4. The irregular plurals
5. Inversion questions
6. Third-person, singular, ending
7. The genitive case
8. The "accusative with infinitive"
9. Expletive "there" and "it"
10. Deletion of subordinators (only a problem of reception)
11. Need to have an explicit "subject" (including "it")
12. All the prepositions
13. The possessive adjectives

14. Order of complements or adverbials

15. Formal transitivity ("intransitive verbs used transitively" and "transitive verbs used intransitively")

16. Subject-verb agreement in constructions with expletive "there"

17. Past-participle forms in expressions of posture.

The errors found in our sample evidence that, with the exception of the first five, all these errors do exist. A larger sample, particularly one containing dialogues and dealing with more complex subjects, would have certainly revealed the existence of errors related to problems 1 through 5.

On the other hand, we found the following unpredicted errors:

1. Violation of the rules of "sequence of tenses"

2. Use of the progressive tenses with verbs of perception

3. Wrong formation of the future with "going to"

4. Omission of "be" in the progressive tenses

5. "-ing" ending missing in the progressive forms
6. "And" used for "but"
7. "Instead" needlessly repeated
8. Incompatible determiners
9. "-er" verbalizer missing
10. "-ed" past-tense ending missing
11. "-s" plural ending missing

As may be seen in the summary provided at the end of this section, while we were able to isolate twenty-five kinds of syntactic errors[57] or strings suspected of being erroneous, only three of these kinds of errors proved critical to intelligibility, viz.,

(a) deletion of expletive "it," as in
"* Is night. John and Jane are sleeping,"
with one occurrence;

(b) deletion of the genitive suffix, as in
"* Peter wife ordered her husband...,"
with one occurrence; and

(c) failure to add the "-er" suffix to verbalize and adjective, as in

"* She doesn't low her weight,"
with one occurrence.

These errors were decoded, respectively, by 20 per cent, 20 per cent and 70 per cent of the "judges"; error (a) was confirmed critical by the "syntactic-semantic" test, error (b) by the "isolated error" test, and error (c) by both the "isolated error" test (where 70 per cent, a marginal figure, of the judges considered it critical) and the "syntactic-semantic" test (where 40 per cent of the judges found it critical). As we pointed out before, we have worked on the assumption that decoding 70 per cent or less of an error makes it critical to intelligibility; this left us with one or two apparently marginal cases.

Both refer to the "-s" suffix. The first case, the plural ending of nouns, is clearly dispensed with as non-critical, being decoded by 90 per cent of the judges listening to the "syntactic-semantic" tape (it was originally considered a dubious case as it was decoded by only 58 per cent of the judges in the "dictation" test). The second case, the third person singular ending, also proved non-critical, as was shown by the fact that, of a total of seven occurrences, three were not decoded after the "dictation" test, but all were decoded by 100 per cent of the judges listening in to the "syntactic-semantic" test. In addition to this, the fact must be pointed out that failure to include a "final s" could be postulated as a phonological rather than a syntactic problem or, more precisely, it is an example of a phonological error having syntactic consequences. This also holds, of course, for the genitive ending, which reduces our truly critical syntactic errors to only two.

The fact is that separating errors into phonological, syntactic and semantic is a largely arbitrary matter --as it is arbitrary to "split" language into phonology, syntax and semantics.

An additional example of the influence of phonology on syntax is provided by the "-ed" suffix for the past tense; Spanish speakers have some problems in pronouncing the English /t/ and /d/ forms -- -Ct# and -Cd# being absent in Spanish-- while they usually have fewer problems in pronouncing the /id/ form (there is a certain amount of difficulty because of the fact that Spanish /d/ is realized as [h] in -Vd# in the great majority of the "non-largo[58]" cases). This kind of error proved non-critical to intelligibility, in our research, as a total of five suspicious cases (all of them -Ct# or -Cd#) after the "dictation" test were not borne out by the "syntactic-semantic" test, where they were decoded by an average 98 per cent of the judges. We may anticipate here, incidentally, that failure to use the past tense forms (v^o for v^d) did not prove critical at all, as evidenced by the results of the "syntactic-semantic" test with the strong forms of "make" and "take," which were decoded by 100 per cent of the judges[59]. "* He stay in the snow" (story 7) illustrates one of the procedures whereby we assessed the criticality of an error; while the erroneous sentence was decoded by only 42 per cent of the judges in the first test, it was decoded by 100 per cent of the judges in the "syntactic-semantic" test; in addition to this (as we had doubts as to the acceptability of "He stayed in the snow"), all of the following synonymous sentences were submitted to the "isolated error" test, where they were decoded by 90 per cent or more of the judges,

"He was staying in the snow"	(100%)
"He stayed in the snow"	(90%)
"He was in the snow"	(90%)

All three critical structures (a, b, and c) contrast with their Spanish counterparts or equivalents.

Possession (or whatever the semantic value of "of-phrases" and "genitives" in English) is expounded only periphrastically in Spanish,

the roof of the house
el techo de la casa

the man's house
la casa del hombre

this presenting the classical transferential (or, more precisely, interferencial) problem resulting from going from a one-term system to a two-term system --plus the pronunciation problems presented by /z/ and -Cs# , which do not exist in Spanish, and -Vs and -sC.., where /s/ is realized as [h] in most dialects of Spanish, including the Santiago dialect.

Spanish does possess an adjective verbalizer in "-ar" (e.g., *bajo*/*bajar*, *limpio*/*limpiar*), but it is less productive and more complex than the English verbalizer "-er," usually requiring the sumultaneous presence of the prefix "en-" (e.g., *alto*/*entaltecer*, *sucio*/*ensuciar*, *caro*/*encarecer*) or "a-" (e.g., *barato*/*abaratar*), plus a series of morpho-phonemic rules (among them, the usual transformation of "-ar" into "-er," when preceded by inceptive "-c-"), a situation which is "etically" different in English and, therefore, presents a problem of interference. However, rather than interlingual interference it is intralingual interference which affects our learner in this case, namely, the polysemous nature of "-er" in English (e.g., "to lower," "lower than," "singer," "drawer"), a situation which --in this case-- does not exist in his native language.

Expletive "it" is altogether absent in Spanish, the translation equivalents (Catford, 1965) for weather and time expressions being the "impersonal" or "unipersonal" verb hacer (a homophone of hacer, "make," "do") and the linking verbs ser and estar e.g.,

it is cold	hace frío
it is cloudy	está nublado
it is night-time	es de noche

As we shall see further on, our research does suggest, in line with structuralist thinking and contrary to many present-day views that deny the predominant role of interference in producing foreign language errors, that transfer is an important factor in language learning; roughly speaking, an interferential origin --or an interferential strategy, specific to the learner's native language, for solving a problem that arises from polymorphous or polysemous features within the target language itself-- can be hypothesized for at least ten of the remaining twenty-two kinds of syntactic errors, all of them critical to intelligibility.

The clearest case of non-critical interferential (etiological or strategical) error in our corpus is provided by the misuse of the possessive adjectives (specifically, "his" for "her"), Spanish having one form (agreeing in number with the thing possessed) where English has five,

your house	your houses	*su casa*	*sus casas*
his house	his houses	*su casa*	*sus casas*
her house	her houses	*su casa*	*sus casas*
its house	its houses	*su casa*	*sus casas*
their house	their houses	*su casa*	*sus casas*[60]

The Spanish speaker handles a monomorphous system of possessive adjectives which presents a very high ambiguity risk (e.g., *Vi a Pedro y a su señora*, which can mean either "I saw Peter and his wife" or "I saw Peter and your wife"), ambiguity which he can solve in several ways (e.g., *Vi a Pedro con la señora*, "I saw Peter with his/the wife") and therefore finds the English system unnecessarily precise and often redundant (e.g., "They pulled his tooth out," where Spanish would not use a possessive at all, the indefinite article satisfying the linking need to keep the string together). In spite of this, this kind of error, which had shown to be suspicious of low intelligibility in the "dictation" test, proved non-critical both after the "isolated error" test (an average of 100 per cent of the judges decoding it) and the "syntactic-semantic" test (an average of 90 per cent of the judges decoding it).

Possibly interferential (largely depending on the learner's stage of foreign language development) is the failure to form the English "accusative with infinitive,"

I want you to go	*Quiero que vayas*
I want that you go	*Quiero que vayas*

where --again-- we have a two-term system in English ("accusative with infinitive" or "that-clause") as against a one-term system in Spanish ("that-clause," only). It is precisely this kind of contrastive characteristic that gives this type of error (our speakers actually combined both English patterns, as in "* She ordered to him that he must go") a very high intelligibility rate --100 per cent of the judges decoding it in both the "isolated error" and the "syntactic-semantic" tests.

Also interferential is the absence of verb-subject agreement in constructions with "there + be" where Spanish, again, uses an "impersonal" or "unipersonal" verb (*haber*, a homophone of *haber*, "to have"),

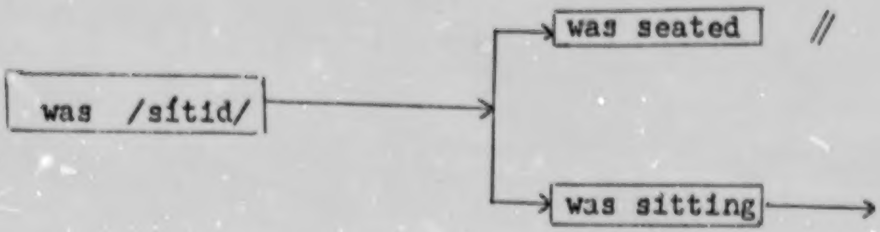
there's a man	*hay un hombre*
there are two men	*hay dos hombres*
there was a man	*había un hombre*
there were two men	*había dos hombres*[61]

Not readily identifiable, because of acceptability differences in the various geographical dialects of Spanish, is the use of perceptual "see" in the progressive, as in "* She was seeing a magician." This error, which proved intelligible to only 58 per cent of the judges in the "dictation" test, was decoded by 100 per cent of the judges in the "syntactic-semantic" test.

The use of the past participle form for the present participle form (v^n for v^g) with verbs of posture completes this list of (etiologically or strategically) interferential errors which are non-critical to intelligibility, as Spanish reserves the forms with v^g exclusively for the progressive tenses,

he was sitting (down)	estaba sentado
he was in the process of sitting (down)	estaba sentándose

Free from its possible pronunication error (/i/ for /i:/) this syntactic error was decoded by 90 per cent of the judges ("syntactic-semantic" test) as, in fact, the listener was left with no alternative interpretations,



Most of the errors arising from the misuse of prepositions are also of interferential origin. "In" for "on" (as in "x in the floor") is one such case, with understandably low criticality (it was decoded by 100 per cent of the judges) both because, in this context, it does not offer interpretative alternatives and there is considerable dialectal difference in the use of these prepositions in similar contexts, Spanish having only one spatial/situational preposition where English has two,

on the roof	*en el tejado*
in the room	*en la pieza*

though there are cases where it makes spatial/situational differences which English does not make, unless by paraphrase

en el rincón	in the inside corner
en la esquina	on the outside corner

Disregarding complications, in the case of "in/on" contrasted with *en*, we have a two-term system in English against a one-term system in Spanish, a situation which favours decoding (or rather, the formulation of interpretative hypotheses and their solution by context) by native speakers of English, of ill-formed utterances by foreigners of Spanish-speaking background.

Similarly, "for" (as in "* They go for a dark place") was --contrary to our expectations-- decoded as "through" by 83 per cent of the judges in the "dictation" test and, consequently, needed no intelligibility confirmation by either the "isolated error" or the "syntactic-semantic" tests. The reason for intelligibility here is, we believe, the fact that --once more-- the context allowed for no alternative interpretation (such an alternative interpretation could be, for example, "They went in search of a dark place"). If anything, we have here the opposite systematic difference to the previous case, that is, a one-term system in English against a two-term system in Spanish (*por* and *a través de*); in this case, however, the two-term Spanish system is clearly polarized, *por* being the unmarked term, highly ambiguous, as it can also mean "in search of" or "by" (among other things),

Fue por el bosque	He went through the wood
Fue por sus llaves	He went for his keys
Fue por avión	He went by plane,

a través de being reserved for the prevention or solution of ambiguities,

He went through the wood	*Fue por el bosque*
He went through the wood	*Fue a través del bosque*

Many linguists --Coseriu, for one (Coseriu, 1962)-- have referred to the instability or indetermenacy of language systems. Thus Jain, to quote an applied linguist of this decade, states that "certain areas within the structure of English are more facilitative or indetermenacy than others . . . articles, prepositions, and the tense system" (Jain, 1974). As it is, a characteristic of Spanish is the instability of the meanings of its prepositions, even intradialectically, a situation which contrasts with the less unstable situation in English (e.g., "He travelled by plane" --*Viajó en avión*, *Viajó por avión*).

Clearly interferential is the use of "to" with "enter" (as in "* He entered to the house"), as Spanish requires a preposition with the equivalent verb,

He entered the house

$$\underline{\text{Entró}}\left\{\begin{matrix}\underline{\text{a}}\\ \\ \underline{\text{en}}\end{matrix}\right\}\underline{\text{la}}\ \underline{\text{casa}}$$

As expected, this error was decoded by 90 per cent of the judges both in the "isolated error" and in the "syntactic-semantic" tests (we decided to submit this error to both tests as the sentence where it appears was decoded by less than 50 per cent of the judges in the "dictation" test and we wished to determine the degree of unintelligibility of each of the several errors --both syntactic and phonological-- in the utterance).

On the other hand, failure to include prepositions, postpositions, or prepositional adverbs possibly cannot (except in "* They were waiting a bus") be attributable to interference because of the existence of such particles in the Spanish translation equivalents, viz.,

* He looks her	La mira a ella
* a plate soup	un plato de sopa
* instead going	en vez de ir

The reason for the high intelligibility rate of the utterances listed above (decoded by 96 per cent of the judges, on the average) is to be found, we believe, in the purely relational, (lexically) a-semantic nature of the functors left out by the foreign speakers.

One error in our corpus combines the omission of a preposition, the exclusion of an optional relativizor, and features of word order, viz.,

"* He made a hammock to look at his beautiful neighbour."

In this case, in addition to interlinguistic interference there is intralinguistic interference as the foreign speaker is quite likely analogizing with

--"He needed a knife to cut the bread (with)"

The latter sentence is not only well-formed but also precise as to the instrumental nature of the object of the main verb. The object of the first sentence is obviously a locative (MacCoy, 1969), although it was understood as such by only 60 per cent of the judges in the comprehensibility test. Though decoded by only 20 per cent of the judges in the "dictation" test --thus becoming the prepositional error initially least intelligible-- this error proved intelligible to 90 per cent of the judges in the "syntactic-semantic" test.

Then there are several kinds of errors whose interferential origin is doubtful or, at least, arguable. First in the list are the errors presumably arising in the fact that Spanish has a long list of "spuriously reflexive" verbs (some, but not all, offering an alternative, rather solemn form, without the spurious reflexive object), which take only se as an object,

Informal	Formal	
(El) se fue	---	He went away
(El) se perdió	---	He got lost

(*El*) *se murió* (*El*) *murió* He died

(*El*) *se cayó* (*El*) *cayó*[62] He fell.

Consequently, it is not entirely arbitrary to attribute "* He fell it" to interference. Context, the low frequency of "to fell," and formal matters (e.g., absence of "-s" or "-ed") made interpretation possible by 80 per cent of the judges in the "isolated error" test and 100 per cent of the judges in the "syntactic-semantic" test.

The Neuter (Object) Deletion Transformation seems to have fewer constraints in Spanish than it does in English, as a result of which Spanish has a comparatively larger number of "transitive verbs which can be used intransitively" under certain conditions, such being the case with --for example-- *traer*, "bring," and *tomar*, "take," hence

* After he had brought [the plate], he saw a fly in it

* She decided to take [a message] again.

As in the case of many of the syntactic errors so far mentioned, the low criticality of this error (it was decoded by 100 per cent of the judges in the "syntactic-semantic" test) may also be attributable --we believe-- to the listener's impossibility of conceiving more than one plausible interpretation for each sentence.

A preliminary investigation (Wigdorsky, forthcoming article) of non-stage spoken Spanish --as spoken in Santiago, at least-- forces the conclusion that $V_{intr.}$ + Subject is the preferred order, when the subject is not a pronoun (e.g., *Llegó el profesor* is more frequent than *El profesor llegó*[63] for "The teacher/professor has arrived"), which accounts for the error "* Then appeared a chair." The high intelligibility of this error may be attributed, we believe, to the fact that --for all its allegedly strict word order-- English does present multiple "licenses" or "exceptions," particularly in the poetic or near-poetic registers, not to mention the fact that there is a common case of "inversion" in the construction with "there + be."

It is possible that the Spanish equivalent of the conjoining rule that proscribes "but" when incompatibility between two propositions is presupposed, is obsolete or obsolescent in spoken Spanish; if that is the case, then "* A boy likes a tall girl but he is short" is caused by interference. In any case, because of its relevance for entailment, this error is likely to cause a comprehensibility rather than an intelligibility problem (it was decoded by 100 per cent of the judges in the "syntactic-semantic" test).

The remaining problems can hardly be attributable to interference, as they are based on systems which are fairly congruent in English and Spanish. Such is the case with (a) the omission of a relative pronoun (as in "* There were three firemen had/held a canvass"), which was decoded by an average 90 per cent of the judges in the "isolated error" test[64]; (b) the use of v^{g} rather than v^{to} (as in "* Instead of going working, he..."); (c) the omission of "be" in the progressive forms (as in "* The plants growing rapidly"), which was decoded by 100 per cent of the judges in the "isolated error" test; (d) subject-verb disagreement (as in "* The men who is taking the photograph looks at her"), which was decoded by 100 per cent of the judges in the "syntactic-semantic" test; (e) wrong deletion of "a" in a conjoined sentence (as in "? She gave him a spade and rake[65]"), decoded by 100 per cent of the judges; (f) needless repetition of "instead" (as in "* Instead of going [to work] he instead detours"), decoded by 100 per cent of the judges; (g) violation of sequential constraints (and, as a result, semantic incompatibility) in the determiner (as in "* There is a three firemen had a canvass"), decoded by 100 per cent of the judges[66]; (h) failure to use strong past tense forms, already referred to above; and (i) closely related to the two previous items and, in many ways, inseparable from them, the violation of the rules of sequence of tenses (as in "* He smiled and take a photograph"), decoded by an average 50 per cent of the judges in the "dictation" test but by a 100 per cent of the judges in the "syntactic-semantic" test.

We thus agree with Corder's view that, while most errors are predictable (i.e., due to interference, polymorphism, or other reasons), an important number seems to be idiosyncratic (Corder, 1971). This, to a certain extent, seems to be in conflict --where syntactic errors are concerned-- with Olsson's assertion that "By far, the greater number of errors are thus of a systematic nature" (Olsson, 1973), as she makes no real use of the concepts of "interlect" and "interlanguage."

The view that errors are not necessarily due to interference is strengthened by the fact that many of the errors listed in this section also appear in learners whose native language is not Spanish; thus, for example, quite a few of them may be found in Indian English (Jain, 1974; Bansal, 1966).

The reader will have noticed that, besides their apparent independence from interference (class h may be considered an exception to this, as the corresponding verbal paradigms differ in both languages), the classes of errors discussed above share the characteristic of being highly intelligible (90 to 100 per cent of the judges decoding them); we attribute this high level of intelligibility to the relatively small semantic value of functors, relevant to all the cases just mentioned.

Somewhat lower in intelligibility (decoded by 80 per cent of the judges in the "syntactic-semantic" test) was the use of v^o for v^g in the formation of the progressive tenses (as in "* The man is admire a beautiful girl"), an error that cannot be attributable to interference, as Spanish has a congruent form and Chilean Spanish, in particular, uses the progressive tenses intensively. This error, which was decoded by only 42 per cent of the judges in the "dictation" test, readily offered two interpretations,

(a) The man is admiring a beautiful girl

(b) The man is admired by a beautiful girl

Both because of context (scarce as it was) and of the absence of "by," only 20 per cent of the judges in the "syntactic-semantic" test chose the second interpretation.

We close this view of non-critical errors with a class that hardly constitutes error, namely, various departures from what may be considered more frequent, or expected, word order in English (and, possibly, also in Spanish). We included these items partly because they were only fairly well decoded by the judges in the "dictation" test, but mainly to isolate strings or features which are definitely erroneous and, consequently, suspicious of unintelligibility. The sentences in this group, all of them decoded by 100 per cent of the judges in either of the "confirmation" tests, are the following:

	Grammaticality Percentage	Acceptability Percentage
? He took out the lens and saw facing him a fat woman	50	43

? At the window there is a man	83	45
? Instead of a rabbit appeared a chair	17	14

I was trained, in the 1950's, in a tradition that emphasized "structure" and pronunciation more than vocabulary. I had the privilege of being a student of Charles Fries himself and I can remember very vividly his arguments for the prëeminence of "structure," or syntax: while the vocabulary is virtually infinite the "sentence patterns" are fundamentally limited, the meaning of a sentence is not equal (necessarily) to the addition of the meanings of its words, the basic semantic relations are indicated (at least, in English) by "formal devices" and the "function words," etc. Above all, there were practical reasons, such as the need to cover a syllabus in a given time and the possibility of enlarging the (passive, at least) vocabulary at home. It has to be borne in mind, of course, that the foreign language teachers with a "structuralist" background reacted against the tendency of "confusing a language with its dictionary," which had proved both theoretically and empirically groundless.

In addition to a respectable background provided by a utilitarian tradition, the "structuralist" foreign language teachers possessed the evidence provided by the success of the "crash" courses of the "Army Method" with --especially, not to say almost exclusively-- exotic or distant languages whose "structures" differ considerably from the structure of English. There was no sufficient experience, at the time, with the results of extensive and intensive "structure" drills with languages closely related --either historically or formally-- to English. Nor were the theoreticians of the "approach" particularly concerned with the "receiving end" of the speaking process. The results we have obtained in this research work do not seem to support the structuralist assumption implied in the previous paragraph of this section, at least from the point of view of intelligibility.

It is our opinion that the slight incidence of syntax on intelligibility is one of our most interesting findings, particularly --as we have said before-- if we consider that the teaching of English as a foreign language has emphasized and continues to emphasize the mastery of syntactic patterns, a fact which is further evidenced by the permanence of the syntax-based syllabus and the syntax-based textbook[67].

The fact is, as we have said before, that --because of the basic similarities between the syntax of English and the syntax of Spanish-- the "formal devices" used by both languages are largely predictable and, consequently, present a low intelligibility risk; also the facts contribute to the "recoverability" or "reconstruction" of the intended patterns that the linguistic norm is frequently varied dialectically (both diastratically and diatopically) and stylistically; thus the educated native speaker is, in fact, pluri-dialectal, which accounts for the fact that he can recognize --and, in many cases, produce-- dialectal features which he does not normally use. Such is the case with the omission of the "-s" ending in verbs (typical of several substandard dialects, both in Britain and in the United States), the violation of the rules of sequence of tenses (also a social feature), the use of the periphrastic possessive rather than the genitive case (mainly a stylistic device), the use of the "that-clause" instead of the "accusative with infinitive" (mostly stylistic, when there is a choice), the omission of "be" in the progressive forms, in some cases (e.g., stylistically, "You going there?"), the neutralization of "fewer" and "less," and so on. Syntax and phonology thus present a parallel situation.

Above all, the perception of a syntactically ill-formed utterance elicits a restricted number of interpretative hypotheses which --like ambiguity, intra-dialectically-- are usually solved by context. Thus "* The clothes fell it," in our story 4, can be interpreted only as "The clothes fell"; "* They entered to a restaurant," "* They're waiting the bus," and most of the ill-formed utterances presented in this section are similarly solved by context, in its widest sense. (The reader is referred to Fig. 5).

Unlike pronunciation errors, syntactic errors (with the possible exception of word formation) only rarely have semantic consequences at the level of the word, which also accounts for their low intelligibility risk.

Table 20 provides a classification and a summarized inventory of the syntactic errors found in our corpus, together with the statements as to whether they are or are not critical to intelligibility.

Table 20

		Occurrences	Story numbers	Intelligibility $\bar{x}$%	CRITICALITY Isolated-Error Test $\bar{x}$%	 Syntactic-Semantic Test %	General Estimate
1.	Substitution of "his" for "her"	3	4, 13, 15	90	-	90	Non-critical
2.	Violation of "sequence of tenses"	2	6, 14	27	30	100	Critical
3.	Omission of relative pronoun "who"	1	8	0	90	-	Non-critical
4.	Progressive tenses with percep. verbs	1	6	58	100	100	Non-critical
5.	"going" + v^g	1	13	0	100	100	Non-critical
6.	Wrong order of complements or adverbials (mostly hyperbatonic)	5	4, 6, 8. 10, 14	60	100	100	Non-critical
7.	Genitive omitted	1	13	0	40	-	Critical
8.	Substitution of "of-phrase" for genitive case	1	9	0	100	-	Non-critical
9.	Ill-formed "accusative with infinitive"	1	14	0	100	100	Non-critical
10.	"Be" omitted in progressive tenses	1	3	25	100	-	Non-critical

Continued

Table 20
INVENTORY OF SYNTACTIC ERRORS (EXAMPLES GIVEN SEPARATELY)

Table 20 (continued)

	Occurrences	Story numbers	Intelligibility $\bar{x}$%	Isolated-Error Test $\bar{x}$%	Syntactic-Semantic Test %	General Estimate
11. V_t for V_i	1	15	0	40	100	Non-critical
12. V_i for V_t	2	5	0	-	100	Non-critical
13. Prepositions (various errors)	7	4, 5, 13, 14, 15	55	95	97	Non-critical
14. v^g missing in the progressive forms	1	3	42	-	80	Non-critical
15. "And" for "but"	1	7	83	-	100	Non-critical
16. V + Subject (inverted word order in statements)	11	6	50	-	90	Non-critical
17. Expletive "it" missing	1	15	0	-	0	Critical
18. "There is" + n_{pl}	1	8	67	-	100	Non-critical
19. Subject-verb disagreement	1	14	25	-	100	Non-critical
20. v^n with verbs of posture	1	9	0	-	90	Non-critical
21. "Instead" needlessly repeated	1	13	0	-	100	Non-critical

Continued

Table 20

INVENTORY OF SYNTACTIC ERRORS (EXAMPLES GIVEN SEPARATELY)

Table 20 (Continued)

	Occurrences	Story numbers	Intelligibility $\bar{x}$%	CRITICALITY Isolated-Error Test $\bar{x}$ %	Syntactic-Semantic Test %	General Estimate
22. Incompatible determiners	1	8	20	-	100	Non-critical
23. Wrong deletion of "a" in conjoined sentence	1	13	20	-	100	Non-critical
24. "-er" verbalizer missing	1	12	0	-	70	Critical
25. v^i for v^d (irregular verbs)	2	7	83	-	100	Non-critical
26. "-ed" (past tense) missing	5	6, 7, 12	29	-	98	Non-critical
27. "-s" (3rd pers. sing.) missing	5	7, 14, 15	67	95	100	Non-critical
28. "-s" plural, missing	1	9	58	-	100	Non-critical

Table 20

INVENTORY OF SYNTACTIC ERRORS (EXAMPLES GIVEN SEPARATELY)

Examples

1. • Mrs Smith and his husband went abroad.
2. • He smiled and take a photograph.
3. • There were three men had a canvass.
4. • She was seeing a magician.
5. • Instead of going working, he detours.
6. • ? Instead of a rabbit appeared a chair.
7. • Peter wife ordered her husband...
8. • He was sitting in the place of the girl.
9. • He ordered to her that she must go.
10. • The plants growing rapidly.
11. • The clothes fell it.
12. • After he had brought, the client saw a fly in it.
13. • They went for a dark place. Then he slept in the floor.
14. • The man is admire a beautiful girl.
15. • A boy likes a tall girl and he is short.
16. • Instead of a rabbit appeared a chair.
17. • Is night. Jane and Tom are sleeping.
18. • There is three firemen who had a canvass.
19. • The men who is taking the photograph...
20. • One of the ghosts was sitted in the girl's place.
21. • Instead of going working he instead detours.
22. • There are a three firemen who have a canvass.
23. • So she gave him a spade and rake.
24. • She doesn't low her weight.
25. • He make a ball with the snow.
26. • A chair appear instead of a rabbit.
27. • The man look at her.
28. • They were watching a film of ghost.

Note: Only the relevant errors were left in each example, the utterances being otherwise corrected.

SEMANTIC ERRORS

Semantic errors are, to a very large extent, the consequence of either syntactic or --more commonly-- phonological errors. Examples of the former are the cases of wrong word formation, such as "* low," v. for "lower," v. (e.g., "* She doesn't low her weight") and, of the latter, */wei/ for "weight" and */soiŋ/ for "sewing" --all three, incidentally, having proved critical to intelligibility, as we have already seen. Errors such as the ones just mentioned have been classified, in this report, as "syntactic" or "phonological," while we have tried to isolate in this section the errors arising in the wrong choice --or ignorance of-- words and expressions, here termed "lexical" and "idiomatic" errors, respectively.

Semantics covers much more, of course, than simply lexis; in fact, we share the view that everything in language is significant (though not always propositionally, as it is the case with a foreign accent, an innovative or unusual collocation, even a particular handwriting) and that syntactic structures originate in semantic structures. However, the simple topics of the stories under consideration did not allow for the appearance or detection of what we might term "higher" semantic errors, such as, --for example-- the ones that might arise in the confusion of propositional arguments (e.g., "The murder of the professor"), in the wrong consolidation of predicates and arguments (e.g., "* She eyed an excellent film"), or in wrong presuppositions (e.g., anti-cadential "You live in London?," the presupposition intended being "I do not know where you live" rather than "I can hardly believe it that you live in London"). In any case, "higher" semantic errors affect understanding rather than decoding. Theoretically, the "higher" a semantic item the less language-specific and, consequently, the more likely to be decoded, hence the virtual absence and relative irrelevancy of "higher" semantic errors for our purposes. In this section, then, our approach to semantics is merely structural rather than generative (as we believe it should be in strict theory), although our algorithm for intelligibility and comprehensibility, Fig. 2, actually implies a generative approach.

We believe we can identify only three "higher" semantic errors in our sample, two of them relative to presuppositions. One of them, already dealt with in the section on syntactic errors, refers to the substitution of "and" for "but" in

x? A boy is very short but he likes a tall girl

one of whose presuppositions would be "It is not possible, likely, or worthwhile for short boys to like tall girls." It is not clear whether this meaning was intended by the foreign speaker (i.e., "Although short boys do not have much of a chance with tall girls, yet we have this short boy who actually liked a tall girl") and, in any case --as pointed out before-- this is a problem of comprehensibility rather than intelligibility (it was decoded by 100 per cent of the judges in the "syntactic-semantic" test, its level of intelligibility after the "dictation" test being doubtful --perhaps 80 per cent-- because of the overlapping, at that stage, of errors of several kinds). A similar situation occurred with

x Peter's wives ordered his husband to go and work in the garden

where the presupposition "Peter has more than one wife and they live together" is certainly unlikely, because of cultural reasons. Although decoded by only 58 per cent of the judges in the "dictation" test, this error was decoded by 90 per cent of the judges in the "syntactic semantic" test. Both presumably presuppositional errors, then, proved clearly non-critical to intelligibility.

The third "higher" error, like the first one, affects constraints on conjunctive conjoining; thus

x? Peter was with his wife and there was a pipe with three holes that were leaking

violates the rule (also applicable to Spanish) that in order for two strings to be conjoined with "and" (Spanish y) there has to be inter-propositional overlap of arguments and/or predicates (Wigdorsky, forthcoming). This error, which only 20 per cent of the judges in the "dictation" test decoded, was decoded by 100 per cent of the judges in the "syntactic-semantic" test, thus proving non-critical to intelligibility. The (possible) universality of "higher" semantic errors renders their predictability and --consequently-- their intelligibility good. It will be observed, incidentally, that this sentence has comparatively low grammaticality and acceptability levels (sentence 1, decoded by 8 per cent and 14 per cent of the judges, respectively; Table 12).

We might also include among the "higher" semantic errors one which we have preferred to treat syntactically,

x He made a hammock to look at his beautiful neighbour whose cause might be attributed to the deletion of the markers of one of its marginal arguments (locative or instrumental, in this case).

Errors of "collocation" (i.e., selectional constraints) also proved non-critical to intelligibility; two errors of this kind were recorded:

* Mrs. Brown was seeing T.V.
? He saw a great eye looking at him

both being decoded by 100 per cent of the judges in the "syntactic-semantic" test; because of the co-occurrence of other kinds of errors (mainly phonological), the first sentence was decoded by only 8 per cent of the judges in the "dictation" test.

Purely lexical errors, that is, the substitution of one lexical item for another, proved remarkably scarce --only three-- and non-critical (decoded by 100 per cent of the judges in the "isolated error" and/or the "syntactic-semantic" tests). It is worth mentioning that all three errors had a poor intelligibility rate in the "dictation" test, where errors of several kinds overlapped, viz.

(a) * He was sitted in the post of the girl ("post" decoded by 33 per cent of the judges)

(b) * ". . . and jump off over here" (for "He jumped on top of that place," decoded by 0 per cent of the judges)

(c) *"He take a great /veiz/ which was on the floor" (decoded by 67 per cent of the judges).

In the "syntactic-semantic" and "isolated error" tests, where 100 per cent of the judges decoded the strings given above, they were respectively presented as

(a) * He was sitting in the post of the girl

(b) * He jumped off over here

(c) * He take a great /veiz/ which was on the floor.

We recorded six errors affecting "idioms" or, more properly, "set expressions," all but one (No. 5, below) proving below intelligibility level after the "dictation" test; only one of those errors (* "to take a rub" for "to have a massage") remained unintelligible after the "isolated error" test and the "syntactic-semantic" test, being decoded by 35 per cent of the judges in each case. The five remaining errors,

1. ? a lens of great length

2. * In the midnight, Jane is sleeping very well

3. * The mother is taking a photograph (for "The

mother is having her photograph taken")

4. * At the moment he was looking at her, he saw a big eye

5. ? At the same moment, she left

were decoded by 100 per cent of the judges in either the "isolated error" or the "syntactic-semantic" tests, or both.

We may make the marginal observation that errors affecting the intelligibility of "expressions" or "idioms" are slightly less critical to intelligibility --75 per cent-- than errors affecting the meanings of single-word lexical units (80 per cent). This may be so because (a) nouns and verbs are usually the most frequent and the semantically most prominent lexical items in higher strings, and (b) "idioms" or "expressions" usually convey less information than freer or free-collocation words, such as the major word classes. Actually, this is what made "Basic English" at the same time so easy and so difficult (Ogden, 1944, 1946, 1947; Richards, I.A., 1943, 1960; Richards and Gibson, 1974).

None of the kinds of errors we have here labelled semantic --presuppositional, collocational, lexical, and idiomatic errors-- proved critical to intelligibility in either or both "confirmation" tests (i.e., the "isolated error" and "syntactic-semantic" tests). The same may be said concerning a residual group of four erros we have here termed "stylistic," for lack of a better word:

1. ? At the same moment, Mrs. Brown was left sitting on the floor.

2. ? Then he smiled and took the photograph

3. ? A man who is in a restaurant with a beautiful girl is very happy.

4. ? Suddenly he saw a woman who was his wife.

As in the case of the "idiomatic" errors, these "stylistic" errors proved below intelligibility level in the "dictation" test but all were decoded by 90 to 100 per cent of the judges in either or both of the "confirmation" tests.

Sentence 4 may be attributed to the violation of a semantic (?) rule whereby the NP + NP that intermediately expounds a major propositional argument may come to the surface as a single NP only, e.g., (simplifying).

Intermediate string 1

Buy + past + by John + Ø + something

something is a book

Intermediate string 2

(Buy + past + by John) 0 + something which is a book

Intermediate string 3

(Buy + past + by John) 0 + a book

Intermediate string 4

(Buy + past + by John) a book

Surface string

(John bought) a book

Similarly,

1. See + past + by him + 0 + somebody + somebody was his wife
2. (See + past + by him) 0 + somebody who was his his wife
3. (See + past + by him) 0 + his wife
4. (See + past + by him) his wife
5. (He saw) his wife

Or, syntactically (?), we might say that the sequence

(x) NP^a (wh- + be + NP^a)

(where a indicates the referent)

is severely constrained in most forms of English; in Spanish, incidentally, it does not seem to be so severely limited (Wigdorsky, forthcoming).

The fact that such a constraint as sketched above exists is suggested by the grammaticality and acceptability rates obtained for this sentence, 50 and 43 per cent of the judges passing affirmative statements, respectively.

The error in sentence 3 may be attributed to a rule that restricts the length of an embedded (adjectival) clause when it stands lineally between a noun and its predicating verb; whether this is a semantic, a syntactic or a stylistic rule is a matter of theoretical preferences. That the constraint does exist is suggested by the fact that it was found grammatical by only 55 per cent of the judges and acceptable by only 43 per cent of the respective judges.

We were not able to detect syntactic or semantic errors in sentences 1 and 2; the fact remains, however, that they had low acceptability and initially low intelligibility (i.e., after the "dictation" test)[68]

	Per cent of judges considering	
	intelligible (initially)	acceptable
1. At the same moment, Mrs. Brown was left sitting on the floor	60	43
2. Then he smiled and took the photograph	17	40

Both sentences, however, were decoded by 100 per cent of the judges in the "syntactic-semantic" test, thus proving non-critical to intelligibility.

It is obvious, however, that semantic errors such as the ones just described (sentences 1 through 5) are likely to have a negative impact upon comprehensibility, even though they may be decoded. A rather improvised comprehensibility test (ten judges, all of them fifth or sixth formers, were asked to write paraphrases --or what they thought were paraphrases-- of the sentences they heard, all of them correctly pronounced) yielded the results displayed in Table 21.

It will be observed that the lexical errors (Nos. 1 through 5) were the lowest on comprehensibility,

Table 21

	Percentage of the judges	
	Comprehending	Decoding
(a) Lexis: interdialectal interference		
1. She took a great /veiz/	60	100
(b) Lexis: substitution of items		
2. She jumped off over here	0	100
3. He was sitting in the girl's post	60	100
(c) Lexis: collocation		
4. She was seeing TV	70	100
5. He saw a great eye	80	100
(d) Idiomatic		
6. He decided to take a rub	0	36
7. He used a lens of great length	70	100
8. The mother is taking a photograph	70	100
9. At the same moment she left	90	100
10. At the moment he was looking, he saw a big eye looking at him	70	100
11. In the midnight Jane is sleeping very well	90	100
(e) "Higher" semantic errors		
12. Peter's wives ordered his husband to go and work in the garden	90	90
13. Peter likes a tall girl but he is short	80	100
14. Peter was with his wife and there was a pipe that was leaking	90	100
(f) "Stylistic" errors		
15. At the same moment, Mrs Brown was left sitting on the floor	80	100
16. Then he smiled and take a photograph	90	100
17. A man who is in a restaurant with a beautiful girl is very happy	80	90
18. Suddenly he saw a woman who was his wife	70	100
Averages	68.9	95.3
S.D.	26.22	14.72

Table 21

IMPACT OF SEMANTIC ERRORS UPON COMPREHENSION AND DECODING: 5th AND 6th YEAR STUDENTS followed closely by the idiomatic errors, while both the "higher" semantic errors and the "stylistic" errors were --as it was expected-- comparatively high on comprehension tolerance. These differences appear to be significant (P = .1% $\chi^2 = 31.8$), although significance in any one pair of types of errors could not be established, with the possible exception of lexical errors and "higher" errors (p = .005 on a one-tailed test, U = .5). Lexical errors were significantly more critical to comprehensibility (P = .2% $\chi^2 = 10.6$ by Yates' test) than the remaining types of semantic errors considered globally.

No significance could be found (P > 10%) for the corresponding comparisons in the case of intelligibility.

Table 22 complements Table 21; as it was to be expected, globally, semantic errors proved significantly more critical to comprehensibility than to intelligibility; this was also the case sectionally (lexical, idiomatic, "higher," and stylistic errors), with the single exception of the "higher" errors. The results of the application of the same comprehensibility test and of the corresponding intelligibility test (i.e., take the eighteen sentences down in dictation) to third

Table 22

	Percentage of the judges comprehending	Percentage of the judges decoding	
Lexical, $\bar{x}$	54.0	100.0	
S.D.	28.0	0	
t	3.285		$p = .005$
Idiomatic, $\bar{x}$	65.4	89.33	
S.D.	30.41	23.85	
t	4.666		$p = .005$
"Higher", $\bar{x}$	86.67	96.67	
S.D.	4.71	4.71	
t	1.73		$p > .20$
"Stylistic", $\bar{x}$	80.0	97.5	
S.D.	7.07	4.33	
t	3.656		$p = .005$
Total errors, $\bar{x}$	68.9	95.3	
S.D.	26.22	14.72	
t	5.137		$p < .001$

Table 22

IMPACT OF SEMANTIC ERRORS UPON COMPREHENSIBILITY AND INTELLIGIBILITY: GLOBAL AND SECTIONAL MEASUREMENTS FOR MEANS, STANDARD DEVIATIONS, AND SIGNIFICANCE ("t-TEST") year students (rather than fifth-or sixth-year students) seems to lend support to the hypothesis that general personal experience is more relevant to comprehensibility than it is to intelligibility; the corresponding results are shown in Table 23 (comprehensibility, t = 6.24 p = .001; intelligibility, t = 4.72 p = .001).

Always bearing in mind that these remarks refer to our sample of very simple stories, we suggest the following conclusions:

1) semantic errors are relatively scarce because most errors which initially look semantic may be found to have either phonological or syntactic causes;

2) though highly relevant to comprehensibility, semantic errors do not seem to affect intelligibility to a radical extent;

3) lexical errors seem to affect comprehensibility much more than do the remaining types of semantic errors;

4) comprehensibility is significantly more dependent on personal experience than intelligibility appears to be.

Conclusion (3) requires a comment to the effect

Table 21

	Percentage		of	Judges
	Understanding		Decoding	
	5/6th	3rd	5/6th	3rd
Sentence number 1	60	30	100	90
Sentence number 2	0	0	100	90
Sentence number 3	60	40	100	90
Sentence number 4	70	60	100	100
Sentence number 5	80	70	100	100
Sentence number 6	0	0	36	20
Sentence number 7	70	40	100	100
Sentence number 8	70	50	100	100
Sentence number 9	90	80	100	100
Sentence number 10	70	60	100	90
Sentence number 11	90	90	100	90
Sentence number 12	90	80	100	100
Sentence number 13	80	70	100	90
Sentence number 14	90	70	100	80
Sentence number 15	80	60	100	90
Sentence number 16	90	80	100	100
Sentence number 17	80	50	90	80
Sentence number 18	70	50	100	90
Averages	68.8	54.4	95.9	88.89
S.D.	26.223	24.771	14.704	17.916

Table 23

IMPACT OF SEMANTIC ERRORS UPON COMPREHENSION AND DECODING:
3rd YEAR STUDENTS COMPARED WITH 5th AND 6th YEAR STUDENTS

that --obviously, an in general terms-- specific (semantically "lower") and/or low-frequency items present a higher risk for comprehensibility than do less specific, and/or more frequent items.

Three remarks concerning phonological errors are relevant, we believe, to errors in semantics. One of them concerns the apparently high criticality risk --when mispronounced-- of words of low frequency of occurrence in general English (e.g., "detour," "labyrinth"). The second remark refers to the fact that, apparently, if a listener fails to hear the head noun in a SUBJ:NP tagmeme, he is unlikely to decode the whole utterance; thus, for example, approximately 50 per cent of our English-speaking judges failed to decode and to understand the well-formed sentence "A client entered a restaurant one day" because they missed the word "client," which was mispronounced, thus motivating a semantic error of a lexical nature. And, lastly, our findings seem to indicate that isolated, unsystematic features of American English (e.g., /veiz/ for "vase") interferes with the decoding and comprehension of a learner's interlect modelled on RP.

Table 24, below, provides a summary view of the semantic errors which appeared in our corpus. As it was

Table 24

	Occurrences	Story numbers	Intelligibility %	CRITICALITY Isolated-Error Test %	Syntactic-Semantic Test %	General Estimate
.1 Lexical: interdialectal interference	1	10	60	-	85	Non-critical
.2 Lexical: substitution of items	2	7, 9	17	-	50	Critical
.3 Lexical: collocation	2	6, 11	50	-	85	Non-critical
. Idiomatic (various)	7	6, 11, 12, 15	45	67	94	Non-critical
.1 "Higher" error: presuppositional	2	7, 13	69	-	95	Non-critical
.2 "Higher" error: conjoining constraint	1	1	42	-	100	Non-critical
. "Stylistic"	4	6, 10, 14	49	100	98	Non-critical

---

xamples:

1.1 She took a great /veiz/

1.2 * She jumped off over here

1.3 * She was seeing TV

2. * He decided to take a rub
   * He used a lens of great length

3.1 ? Peter likes a tall girl but he is short

3.2 ? Peter was with his wife and there was a pipe that was leaking

4. A man who is in a restaurant with a beautiful girl is very happy

Table 24

INVENTORY OF THE SEMANTIC ERRORS

to be expected, there was good correlation ($p = .01$ $r_s = .96$) between the frequency of the types of semantic errors and their level of criticality for intelligibility.

CONCLUSIONS

General remarks

One of the main provisional conclusions that may be drawn from this work is that intelligibility and comprehensibility, as we have defined them, are different scales or clines whose reciprocal relation is less than moderate. In other words, that it is possible for the foreign speaker to make himself understood in English even if he is not completely intelligible, and --obviously-- that high intelligibility does not necessarily ensure comprehensibility; we saw that the reason for this apparently lies in the fact that understanding depends to a much larger extent than decoding on extra-linguistic, cognitive factors and situational context. On the other hand, common sense and the correlation coefficients obtained --albeit not significant at the degrees of freedom we were able to work with-- for intelligibility and comprehensibility seem to indicate that an utterance which is intelligible is more likely to be understood than one which is not.

The fact stands out that, having native speakers of English as a standard for comparison, our speakers achieved high intelligibility --and even higher comprehensibility-- regardless of the fact that they made a fair amount of errors and made no use pf phatic language (this appearing to be one of the characteristics of our learners' interlects), and that --because of the nature of the tests employed in the experiment-- there were no extra- or co-linguistic clues (such as stereotyped contexts or gestures) to assist the listeners in either decoding or comprehending. On the other hand, it is likely that our speakers' slower speed of speech contributed positively to their intelligibility and comprehensibility.

We may also conclude that, although the variables or factors determining intelligibility and comprehensibility coincide to a large extent, the former nevertheless proved more difficult to achieve than the latter. This is most likely caused by the fact that the common variables or factors have different incidence on intelligibility and comprehensibility and that --in particular-- while the more general factors (e.g., listener's general experience, amount of situational context) seem to have a greater impact upon comprehensibility, the more specific factors (e.g., degree of structural divergence between the languages concerned, coding efficiency of both languages, instabilities of their subsystems, level of noise, etc.) seem to have a greater impact upon intelligibility. Unlike comprehensibility, intelligibility (as we have defined it here) appears to be relatively context-free.

Formal testing (standardized objective tests and judgements by panels of teachers) did not prove to correlate with either intelligibility or comprehensibility. Admittedly the delimitations of these theoretical constructs could be made more precise (a situation which is common to most of the constructs or concepts employed by the human sciences), but the fact is also true that formal testing is seldom centered on the assessment of the achievement of successful communication, let alone from the native listener's view-point. With few exceptions, formal testing reflects foreign language teaching which, despite theoretical declarations, is mainly concerned with the receptive and manipulative aspects of foreign language learning.

Acceptability, as defined for this test, did not prove correlated with intelligibility; in other words, an utterance can be intelligible but unacceptable, and vice-versa. On the other hand, and as it was to be expected, acceptability and grammaticality proved positively correlated, grammaticality being significantly easier to achieve than acceptability[69].

We also found out that, although the native listener possesses a latent knowledge of his language which allows him to understand and decode forms which belong in dialects other than his own, the unsystematic use by the learner of features belonging in other dialects nevertheless actually interferes with both intelligibility and comprehensibility.

We showed that intelligibility and comprehensibility may be affected in different degrees by the same classes and sub-classes of errors, pronunciation errors being --on the whole-- the most critical (at least for intelligibility), partly because they underlie many apparently semantic (mainly lexical) and some syntactic errors, these being the least critical for intelligibility. Their large number also contributes to making phonological errors particularly critical to intelligibility.

In isolation (i.e., not coinciding with other errors in the same utterance) only 31.5 per cent of the types of errors --almost six sevenths of them phonological-- proved critical to intelligibility. On the other hand, the ranking for the criticality of the major types of errors (semantic, syntactic, and phonological) did not correlate with their rankings for frequency or amount, nor could correlation be found in the subtypes of both the syntactic[70] and the phonological errors. There was good correlation, however, between the frequency of the types of semantic errors and their level of criticality for intelligibility.

Only one type of semantic error, the errors caused by the substitution of lexical items, proved critical to intelligibility; the lexical errors affecting collocation and intra-dialectal consistency proved non-critical, though they were comparatively near the intelligibility threshold (they were decoded by 85 per cent of the judges); they were followed --in decreasing order of criticality-- by the "idiomatic" errors, the errors arising in conflicting or illogical presuppositions, the "stylistic" errors, and the errors presumably violating constraints on conjoining. We formulated the hypothesis that the "higher" a semantic error the less language-specific and the more likely to be decoded. Relevant to the criticality of semantic errors is the finding that failure to decode the head of the Subj:NP tagmeme results in failure to decode the whole clause.

Of a total twenty-eight types of syntactic errors, only three proved critical to intelligibility: omission of the genitive (decoded by only 40 per cent of the "judges") and --only marginally, 70 per cent critical-- absence of the "-er" verbalizer and the violation of the rule(s) of "sequence of tenses." All three types add up to four out of a total of fifty-seven tokens. Virtually all the common and expected syntactic errors appeared in our corpus (e.g., word order, prepositions, affixes); but, with the exceptions already mentioned, none of them proved critical to intelligibility. We have hypothesized, in this connection, that relational elements ("functors") have low information value and that --consequently-- overlooking them does not basically affect communication.

We have also hypothesized that the syntax of English and the syntax of Spanish have much more in common than hitherto recognized. In support of this statement, we have pointed to the fact that both languages have a common stock of "formal devices" (and both languages express virtually the same "structural meanings") and that, while there is no coincidence in the use they make of each device, their similarities seem to be greater than hitherto recognized. Thus, for example, Spanish word order does not seem to be as flexible as usually maintained, while English word order is certainly not inflexible; the list of predicted syntactic problems for the speaker of Spanish who learns English is short.

Phonological errors proved the most critical --or, more exactly, the least non-critical-- to intelligibility, most of the criticality load lying on such "suprasegmental" or "prosodic" items as "intrusive syllables" (the only phonological error which proved wholly critical), word stress, group/sentence stress, and pause/reduction (all three only partly critical); still in the suprasegmental area, intonation errors proved utterly non-critical. Six out of fourteen (42 per cent) types of errors affecting vowels and seven out of twenty-four (29 per cent) errors affecting consonants proved critical to intelligibility, partial criticality being roughly the same (21 per cent) in both cases. In the area of the "segments," phonetic substitutions appeared to affect intelligibility as much as phonemic substitutions, while many usual "scarers" proved surprisingly non-critical. As examples of this, we referred to such errors as lack of aspiration of the voiceless stops, friction of /g/ and /b/ in intervocalic position (friction of /d/ obviously becomes a "phonemic" problem), and some cases of incomplete release and "excessive" assimilation. This would seem to suggest that, for this kind of research, dynamic phonological models are more appropriate than (relatively) static models.

Phonological errors (tokens) were both the most frequent and the most critical (or least non-critical); such correspondence was not apparent with the syntactic and the semantic errors which ranked --respectively-- second and third in frequency but third and second in criticality for intelligibility.

While many of the errors in our corpus were most likely caused by interlinguistic interference (both etiological and strategical) and --consequently-- predictable, an important number seems to be idiosyncratic or caused by other reasons, such as polymorphism, polysemy, analogy, or "over-teaching."

In many cases, the English speaking "judges" imposed their own competence on the learners' utterances, mainly by improving the learners' errors (syntactic, semantic or stylistic) or --in some cases-- by hearing ill-formed utterances as well-formed. The finding that the fifth- and sixth-year students, presumably more experienced and linguistically more sophisticated, decoded and understood better than did the third- and fourth-year "judges" seems to lend support to the view that latent knowledge of alternatives is relevant both to intelligibility and comprehensibility. Additionally, although the English-speaking listeners did not score significantly higher than did the non-English speaking "judges," it is worth pointing out that the latter performed below the pre-established thresholds.

The tests of grammaticality and, particularly, of acceptability gave scattered results with listeners of the same linguistic and cultural backgrounds, which lends support to the view that we should not trust unrestrictedly the native speaker's intuition as to what is grammatical, let alone as to what is acceptable.

The judges' attitude to learners' English was --as expected-- more relevant to acceptability than to grammaticality, the experiment suggesting --incidentally-- that "empathy" is an important factor in situations involving foreign speakers.

Pedagogical implications

Pronunciation errors proved the most numerous and the most critical to intelligibility. It appears, then, that if oral communication is to be one of the aims of the teaching of English as a foreign language, then the teaching of pronunciation will have to be strengthened.

Lexical substitutions, on the other hand, obviously can be postulated as particularly critical to comprehensibility; it follows that lexis --particularly the more frequent, less specific items-- cannot be neglected, whatever the objectives of instruction.

What has been said does not imply that syntactic errors are unimportant, but it does suggest that there should be a change of emphasis from present-day almost exclusively syntax-centered praxis.

A large number of the errors discussed in this work originate in interference[71] (either etiological or strategical) from Spanish. The need to revitalize contrastive linguistics, therefore, becomes apparent. At the same time, efforts should be devoted to the study of other sources of errors, particularly polymorphism and analogy, and their relations to different kinds or levels of interference.

Our judges in the grammaticality and --particularly-- the acceptability panels frequently disagreed on many points; at the same time, they were unanimous or nearly unanimous on many other issues. This seems to indicate that the latter items (usually the less colloquial and less dialect-specific ones) can be safely selected for teaching, but that the former items should be revised in the light of modern descriptions of English --always bearing in mind that, in this work, we are concerned with teaching for production.

Our provisional findings concerning the criticality of errors lend support to the need to reassess the objectives of the teaching of English as a foreign language in secondary schools. Apart from the general concordance that should exist between the aims of foreign language teaching and the wider educational objectives of the school system (von Lohman, 1975), we should all agree that what is now termed "communicative competence" --and which, previously and in a less precise sense, I labelled "fluency" (Wigdorsky, 1972a)-- is the main objective for the great majority of students. Although something about this was said in the introduction to this essay, we believe that a few additional remarks would reinforce this point.

Kersten and Ott (1970) maintain that we now have a new kind of secondary school student, one who requires new foreign language programmes based on the skill of "trying to" communicate, and who expects to find a certain amount of pleasure in the learning of a foreign language; this student expects a certain amount of tolerance of his errors, and he himself should be trained to be tolerant of the errors of others. Like Abercrombie, several years ago (Abercrombie, 1956), they maintain that near-native pronunciation is not essential[72], and they go on to say that only to the extent that the students' expectations are met are we justified in investing (or spending?) in foreign language learning and foreign language teaching research. We basically agree with their statements, particularly if the students' expectations match the objectives and the actual operation of the foreign language in a specific context.

Nickel (1973) goes a step further when he maintains that ". . . if certain errors turn up very frequently in language learners who are only interested in the basic communicative element of a target language, this may imply that less intensive courses including regular error systems may have to be offered."

Olsson (1973) is much more precise when she writes that

> . . . the intelligibility of the deviant utterances reached 75 and 90% . . . . It is no exaggeration to say that the marking system in Swedish schools, as far as English is concerned, is founded more on an estimate of the pupil's ability to produce correct sentences than on his speaking and writing intelligible sentences. The result of this investigation shows that change in attitude from stressing correctness to considering communication possibilities would not be amiss.

Johansson (1973) makes a distinction between "conformity" (akin to our "accuracy") and "comprehensibility," in Quirk's terms (1973), and asserts that

> If an error does not affect the comprehensibility of an utterance and does not cause an irritation, it should not be considered a serious error,

and then

> If the primary aim in foreign language teaching is communication . . . this must also be reflected in the principles of error evaluation,

to continue with

> . . . goals in foreign language teaching may be different for different students and on different levels.

Many applied linguists, of today as well as of the past, have expressed their views in favour of a simplified grammar or, in general, of a simplified language for most foreign language learners. Thus, Diethard Lübke (1974), to mention a recent proposal, suggests a "minimum grammar" for French. In this respect, perhaps Ogden and Richards' now neglected Basic English should be reconsidered, particularly where they propose simplified rules of "syntax" and "morphology," in the traditional sense[73].

Van Passel adopts an important position when he maintains in his paper "Defence of Foreign Language Teaching in Secondary Schools" (van Passel, 1974) that "A basic teaching objective is to create an open-minded attitude to [sic.] one's own errors."

Summarizing and interpreting the views expressed above in the light of the present research, foreign language students should be encouraged, in trying to communicate, to use as much of the language as they have acquired in their regular course. We share the feeling of many of those concerned with foreign language teaching that undue insistence on detail and excessive manipulative drilling are not functional to such encouragement and, consequently, to the whole purpose of learning a foreign language.

This question becomes crucial in countries like Chile[74] where the distribution of financial resources is particularly difficult and, consequently, the strict evaluation of projects is required.

The crucial phrases here are "undue insistence" and "excessive manipulative drilling." Foreign language teaching, like all teaching, must reconcile at least three requirements: the students' needs, a sound philosophy of education, and the availability of resources. Perhaps our first question should be, "What does this person, or group of persons, need English for?" It may well be that our future student needs English (or any other foreign language) to become a teacher or a translator; or to attend a course in an English-speaking country; or to attend lectures in English; or to read journals; or to assist tourists; or to pay a short visit to Britain, the United States, Canada, Australia; or to have a wider experience in communication; or just "to manage." Obviously we cannot satisfy everybody's specific needs. But the utilitarian approach must be reconciled with what I have termed " a sound philosophy of education;" in the secondary school, for example, all the subjects should be formative and exploratory rather than vocational. If that is the case, then (a) the subjects should be conveniently dosed, and (b) things should be done well, or not done at all.

But, again, do our resources (both human and material) allow us to try to make all our students speak like native speakers of English? They obviously do not --and that seems to be the case with the teaching of a foreign language, at least at the secondary school level, almost everywhere. Resources are closely linked with the foreign language "model": for most learners the best model available is another foreigner whose English is "acceptable," in the general sense --i.e., foreign-sounding but not irritating, slightly old-fashioned and bookish rather than inadvertedly overfamiliar, effective for communication in most cases. And here, perhaps, is the solution to this difficult balance.

That is to say, we are ill-advised if we waste the learner's incentives with details but, at the same time, we do not wish to encourage --nor even suggest-- carelessness and lack of discipline; nor do we want our learners to sound bizarre to most native speakers of English in most situations. We need flexibility and tolerance within parameters that should be made explicit to the learner at different stages or levels of the learning process.

Suggestions for future research

Perhaps the only important contribution of this work will be to awaken or reactualize interest in several points. More extensive and intensive research should ascertain whether "intelligibility" and "comprehensibility" actually differ in kind, as we have maintained, or whether they are just different stages of the same process. A larger sample should confirm the correlation figure we have obtained; this is also the case with our findings concerning significance of differences.

It is apparent, from our provisional findings, that comprehensibility cannot be achieved unless the speaker possesses a minimum degree of intelligibility. We set an arbitrary seventy per cent minimum, for both processes, on the basis of intelligibility and comprehensibility in situations involving RP speakers and

RP "judges," or Chilean-Spanish speakers and Chilean-Spanish "judges." Again, further research should prove the validity of this assumption, as it seems reasonable to suppose that intelligibility need not be so high as comprehensibility.

Our research has been mainly concerned with intelligibility. It is comprehensibility, however, that seems to play the really important role for the achievement of successful communication. So not only should our findings concerning intelligibility be validated in a wider universe and a more representative sample, but efforts should be made to undertake equivalent research in the field of comprehensibility --albeit the correlation obtained allows for limited extrapolation.

A larger and more complex language sample, together with a more delicate analysis, should provide us with more subtle errors --particularly (apparently) semantic errors. The figures we have obtained for the criticality of errors for intelligibility obviously need validation, especially in the case of errors ranked as partially critical; but, equally important or even more important, analysis should be undertaken of their criticality for comprehensibility, acceptability, and degree of irritation to the native listener. We need to know not only what the risks are for an error to be undecoded or misdecoded, but also its degree of comprehensibility and --if understood by native listeners-- whether it will be considered irritating or offensive to them.

Some work has been done on the impact of the speaker's speed and the listener's "general experience" and "empathy" in the achievement of successful communication. All three points, however, need further analysis.

We have maintained that "starters" and "hesitation fillers" act as noise-compensators and that they seem to be less frequent in learners' English than in native English speakers. The latter statement, because of its additional relevancy for fluency, should be given some more attention.

Repetition of the texts (the "dictation-dictation" test) improved decoding by only 8.4 per cent ($p > .10$) and exclusively in the case of the stories told in less faulty English. This rather suggests that if a message does not get through initially, it is unlikely to do so with subsequent repetitions. This, however, not really contemplated in our experimental design, certainly deserves further attention.

Although English and Spanish are perhaps the best and most widely described languages in the world, much remains to be analyzed, or reanalyzed, in the light of modern linguistics. This is a necessary condition for contrastive analysis and the successful prediction of errors. Longitudinal studies should tell us whether a particular error is due to inter-linguistic or intra-linguistic interference, or some other source of systematic errors. The psycholinguist should help us in the unveiling of the causes of idiosyncratic errors.

An actualized analysis of the syntax of Spanish should answer --for example-- questions concerning the relative flexibility of word order, the preferred pattern for oral statements, the use of the subjunctive, the permitted length and complexity of embedded sentences, the constraints on conjoining, the validity of usually postulated "translation equivalents," the extent of phonological "reduction," the extent of consonantal assimilation, and many other items. The criticality of group/sentence stress and the extra-propositional meaning of intonation should be the subject of extended future research.

The predictability and criticality of errors should, to a large extent, govern our selection of items for syllabuses. Still more important for selection is the detection of the actual needs of groups of students; this, in our opinion, should be done by going directly to the sources, that is, occupational advantages, academic and professional requirements, and --above all-- the students' wishes.

NOTES

1/ "Decoding" consists (as we are using it here) in merely breaking the linguistic code; "understanding" (as we are using it here) consists in getting the message; both are operations performed by the listener, their counterparts in the speaker being "intelligibility" (degree of being easily decoded) and "comprehensibility" (degree of being easily understood), respectively. All four concepts are developed as the thesis progresses. They should be considered hypothetical constructs.

2/ We will consider as "error any deviation from the norm, whatever its cause or origin.

3/ We consider an error "critical" when it interferes with communication beyond a certain degree of tolerance we discuss further on in this thesis.

4/ We are using "acceptable" in the sense of "not alien to the listener's native dialect" and "not transcending actual educated use"; thus, an Americanism in an otherwise RP context, or a bookish form, may be "unacceptable." As we shall see later, judgements on acceptability are passed, on a percentage basis, by panels of native speakers. The concept is developed throughout the thesis.

5/ "Secondary school" is used here as the continuation of "primary school"; in theory, it covers years ninth through twelfth, but in actual practice it begins in the seventh year. In this thesis, we are using the term in its practical sense. English is compulsory in Chilean education from the seventh year through the twelfth year (it could legally be replaced by German, but this has not been the case in any school, at least since 1962), with three forty-five minute sessions per week. A second foreign language, usually French (exceptionally Italian) is also compulsory in the "scientific and humanistic" secondary schools (Gomes de Matos and Wigdorsky, 1968).

6/ Extracts from "The New Guide of the Conversation in Portuguese and English" ('sic') written by Pedro Carolino (Carolino, 1970) more than a hundred years ago; it is one of the most bizarre examples of "pidgin" English and absurd "situations." In its present edition (1970), the ridiculous has obviously been emphasized and exaggerated.

7/ "Density of errors" is used here to refer to the number of errors converging on a word or higher syntagmatic unit.

8/ "Interlect" is a hypothetical construct described as an intermediate stage in the learning of a dialect of a foreign language, as the product of a transitional grammar of a dialect of a foreign language. We prefer "interlect" to "interlanguage" (Selinker, 1969) as we never learn (nor acquire) a whole language but only one, two or three of its dialects (Coseriu, 1962). It is even conceivable that we learn a specific "foreign dialect" of a language, e.g., Indian English, English as spoken by the French, English as spoken by the Chileans. On the other hand, the point is worth making that everybody's grammar (both his L1 and certainly his L2 grammars) is transitional, in the sense that we are continuously modifying it.

9/ Most indexes of the Spanish dialect of Santiago de Chile were checked --[y] as the only allophone of /y/ ($\bar{x}$ = 11.4 [87%] S.D.= 4.08), $/s/ \rightarrow [h] / \_\ C$ ($\bar{x}$ = =13.13 [93%], S.D.= 3.24), $/k/ \rightarrow \left\langle \begin{matrix} [\text{illegible}] \\ [\text{illegible}] \end{matrix} \right\rangle / \_\ C$ ($\bar{x}$ = 13.13 [93%] , S.D.= 3.24), no exceptions to the article-noun agreement ($\bar{x}$ = 11.14 [93%] , S.D. = 24), set of lexical items ($\bar{x}$ = 9.8 [80%] S.D.= 4.4) the correlation figures, for any pair of indicators, were between $r = .70$ and $r = .95$, at $p = .01$).

10/ The average speeds, for both Spanish and English, may be seen in Appendix F, Table 27.

11/ Unless otherwise stated, all the values of p have been estimated on "two-tailed" tests.

12/ These figures were obtained (Wigdorsky, 1972b) from an 11,000-word Spanish text (twenty-eight speakers) and an 11,000-word English text (twenty-three speakers). The speakers belonged in mixed age, educational and sex groups. Please consult Appendix F.

13/ The choice of stories other than numbers 1 to 15 --though equivalent to them in contents-- was motivated by the fact that we had a new situation (native speakers and native listeners) and we consequently wished to avoid a comparison with the previous, obviously less communicative situation.

14/ $p > .10$ $t = .637$ $t = .604$, respectively, but the requirements are not met for the application of the "t-test."

15/ $P = 5\%$ by Fisher's "chi-squared" test.

16/ "We perceive what we expected, even when the speaker has deviated from what we anticipated" (Rivers, 1971)

17/ Stevens and Halle, 1967; Fant, 1967.

18/ The concept of "inferencing" is discussed by Carton (1971).

19/ We use "dialect" to refer to the geographical or social variety of a language. We share the view that a "language" --which is abstract-- is defined as a set of usually overlapping and generally mutually intelligible dialects. The term "accent," which is rarely used in this thesis, is meant to refer only to the phonological component.

20/ Actually, knowing how to use what "bit" of the language we know is part of a more general, instrumental ability.

21/ We are prepared to go only part of the way with this assertion which, in any case, goes beyond the purposes of the present research. Beckmann uses the term "coding efficiency" to refer to this presumably language-specific variation.

22/ The usual translation equivalent of "borrow" is pedir prestado, "ask to lend."

23/ "Symbol" is being used here as conceptualized by Ch. Morris (1938).

24/ Quoted by Guiora, Brannon and Dull, 1972.

25/ "Speech perception" is frequently used by psychologists as a super-ordinate term for what we here need to differentiate, that is, "intelligibility" and "comprehensibility" (or rather, their perceptual counterparts, "decoding" and "understanding"). Thus, George Miller (1964) maintains that perception theory has to cope with both syntactic and semantic rules, while he reports experiments with grammatical sentences, ungrammatical sentences, semantically anomalous sentences, haphazard strings, and different degrees of understanding.

26/ "Decontextualization" has been borrowed from Bolinger (1965) but applied to whole phrases or sentences rather than to words, and restricted to the acquisition or learning of language.

27/ "Educated" is a vague notion; what we have in mind is a person's store of knowledge and experience that allows him to face and solve unpredicted or unpredictable problems. Linguistic sophistication may be --we believe-- an aspect of education.

28/ There are, of course, additional psychological factors such as fatigue, motivation, "set," and repression. As it is usually the case with factors of this kind, their experimental treatment has proved hardly satisfactory, even though they are pragmatically important.

29/ Plural endings, past tense endings, proclitics, etc. (Beckmann, 1971). Please see note 21.

30/ For the reasons discussed on page 68 , we may assume that immediate memory was a controlled variable in intelligibility.

31/ We have arbitrarily set the "intelligibility" and "comprehensibility" thresholds at seventy per cent. This is not groundless, however, as it equals the threshold of "criticality," as we shall see in the corresponding section.

32/ Fries (1945), for example, insisted on the view that "accuracy" should precede "fluency."

33/ $p = .01$ $t = 3.3055$, but the requirements are not met for the application of the "t-test."

34/ Please see note 31.

35/ $r = .435$ and $r = .265$, respectively, but the requirements are not met for the application of Pearson's Product-Moment Test.

36/ Pearson's Skewness Test.

37/ Crown Woods Comprehensive School (London) and Ashfield Comprehensive School (Sherwood, Notts.).

38/ The requirements are not met for the application of Pearson's Product-Moment Test.

39/ Also non-significant, by the same test and with equal probability, proved the different results for English and Spanish in the grammaticality and acceptability tests (Appendices D and E).

40/ Corder (1974) suggests several taxonomies of errors based on different points of view.

41/ Prof. Corder's distinction between overt and covert errors is particularly relevant here.

42/ "Phonological" is used in the sense of "anything having to do with pronunciation." Some considerations concerning "phonemic" and "phonetic" errors will be made later.

43/ $\chi^2 = 27.31$ (Cochran's test) $P = 1\%$ for the figures for phonological, syntactic and semantic errors given on Table 14 (Not taking into account the errors in the "pronunciation only" test).

44/ In other words, our speakers' pronunciation was worse than their syntax and their semantics. Although one could imagine errors of syntax and semantics that could be as critical as errors of pronunciation, the sample we analyzed contained very few of them.

45/ Or "centralized," in an alternative interpretation of this dialectal phenomenon.

46/ We believe this tendency could be turned to the learner's advantage if his goal is not to achieve near-native pronunciation.

47/ Even within the parameters of orthodox "distributionalism" (in our opinion, the most articulate and profitable version of linguistic "structuralism"), the phonemic contrasts [ʌ]/[ə] and [ɔ]/[o] are arguable.

48/ $P = 5\%$ $\chi^2 = 8.43$ (Cochran's test).

49/ Jones, 1948. For practical reasons we have made the following typographic modifications, /ś/, /ź/, /ć/, /j/, /đ/ = /ʃ/, /ʒ/, /tʃ/, /dʒ/, /ð/.

50/ Real Academia Española, 1970. By "American Spanish" we mean Spanish as spoken in the Americas, South of Spain, and other places. Spanish of Castille adds /θ/ and, possibly, /l̮/, both being obsolescent in Castille itself.

51/ $P > 5\%$ by Fisher's "chi-squared" test.

52/ $P = 1\%$ $\chi^2 = 18.17$ (Cochran's test).

53/ $\chi^2 = .38$ $P > 5\%$ (Yates' test).

54/ We have reason to believe, on the basis of recent research conducted under our direction, that reduction and centralization are more common in Santiago Spanish than it is usually asserted.

55/ Diachronically, these endings originate in function words.

56/ Obviously this rule can be formulated much more delicately, particularly in the light of oral everyday language.

57/ As we shall see further on, the separation of errors into phonological, syntactic and semantic is --to a large extent-- arbitrary and, consequently not always straightforward.

58/ Harris, 1969.

59/ Only the test sentence with "take" was redundant, as past time was also signalled by "was" in the subordinate clause; the test sentences with "make" and "stay" were not redundant in this respect.

60/ *Vuestro*, *vuestra*, *vuestros*, *vuestras*, all corresponding to informal "your" against the more formal *su*, *sus*, is used only in parts of Peninsular Spanish; and, with opposite polarity, in (very) formal registers of the remaining dialects of Spanish.

61/ Additionally, there are two --still-- unacceptable forms agreeing with plural subjects, *Habían dos hombres* and *Hubieron dos hombres*, in the imperfective and the perfective, respectively, the latter being definitely substandard.

62/ *El cayó* is both too solemn and ambiguous, being preferred in most cases by the form with *se*.

63/ Both sentences differ in textual meaning, of course.

64/ We are told this is a frequent substandard construction in American English; perhaps this is an additional reason of its low criticality for intelligibility.

65/ This sentence has been reported grammatical by several native speakers of SA.

66/ Surprising as it may seem, story 8, in which this sentence is essential, was 78 per cent decoded and 80 per cent understood.

67/ Situation-centered courses, also based on an old and distinguished tradition, have not proved entirely successful because --among other things-- there is no limit to the number of social situations. The answer to the problem seems to be in the breaking up of situations into basic, finite components, as suggested in the "notional" syllabus (Wilkins, 1972, 1976; Wigdorsky, 1977).

68/ P = 5% by Fisher's "chi-squared" test.

69/ $P > 5\% < 10\%$ $\chi^2 = 6.54$, Yates' test.

70/ $p > .10$ $r = .133$

71/ Interference originates not only in overt structural contrasts (e.g., absence versus presence of items, "emic" against "etic" status of otherwise similar items, differences in polarity) but also in language-specific strategies to expound deep categories

72/ The same idea has been expressed, in another context, by Georges Joyaux (1975) who recommends that "... less emphasis should be placed on the exactness and refinement of pronunciation." We do not think we would agree with this idea if it is the training of teachers that one has in mind.

73/ In my opinion, their "simplified" vocabulary is, because of the increase of polysemy, a complication rather than a simplification.

74/ The following quotes from the special report entitled "Longitudinal study of four thousand students during seven years," which recently appeared in Chile's most important newspaper, indicate that there is widespread concern about the outcome of all the subjects taught in secondary school: "Schieffelbein's comment on the school textbooks is hard. 'None of the textbooks now in use in Chilean education has been checked by its authors with students. They come right from the authors' brains to the students' desks. Anyone who cares to read them and help his children will realize that they are aberrant....' The relation which this study proved to exist between the system and the quality of the school textbooks led the World Bank to change its criterion concerning loans for textbooks. As to the techniques employed by teachers, Schieffelbein pointed out, 'A large number of the problems the teachers have to face with their students derive ... from the fact that they lack information as to what is expected from them, as to the items they are supposed to cover, and as to the independence with which they can do it .... ' " (El Mercurio, February 28, 1978; from Schieffelbein and Farrell, 1977. The translation is ours).

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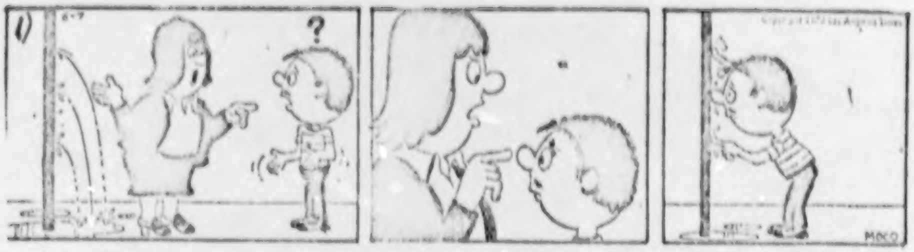
Appendix A

ILLUSTRATIONS

(a) Main Illustrations, Pictures 1 to 15

(b) Supplementary Illustrations, Pictures 16 to 21

Story 1



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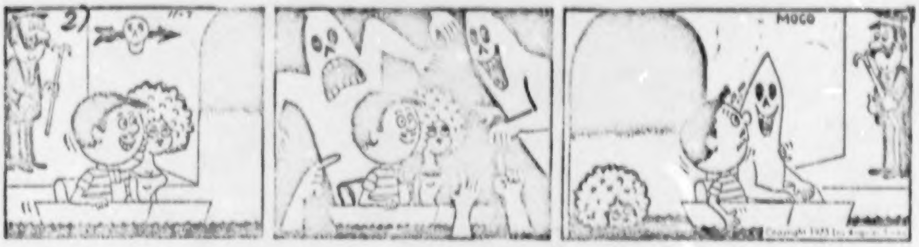

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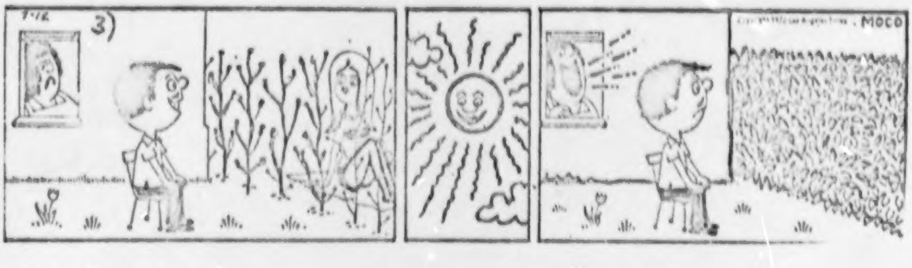

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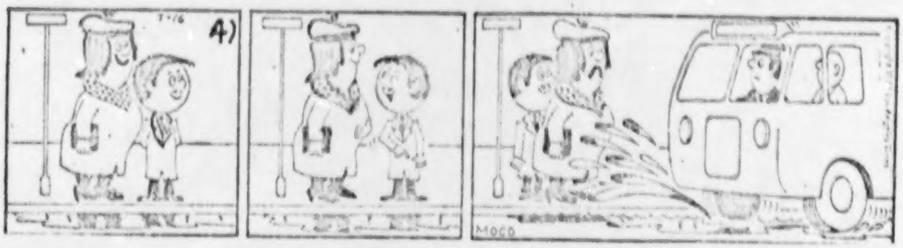

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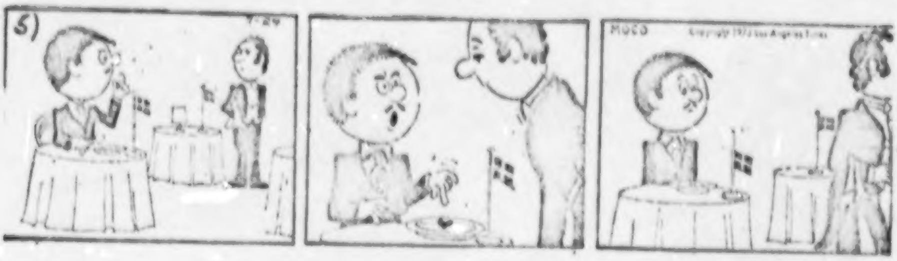
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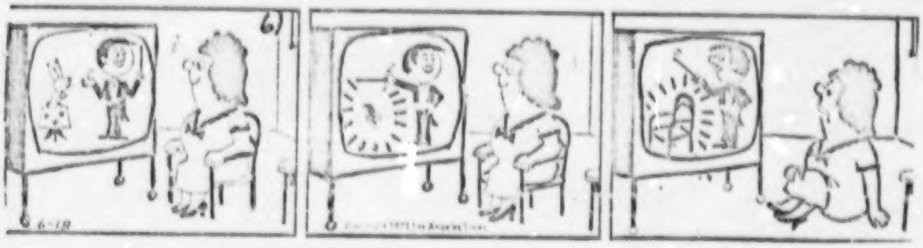
Copyright 1972 Los Angeles Times

Story 6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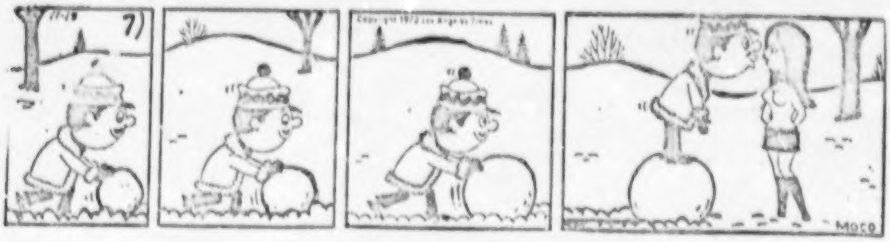
Story 7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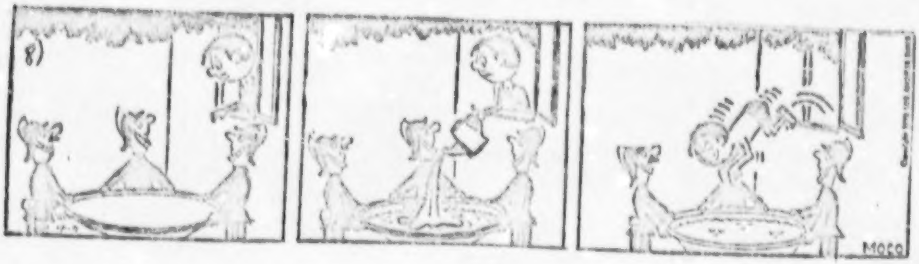

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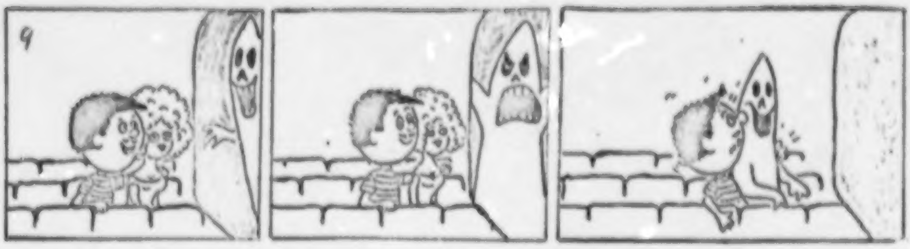

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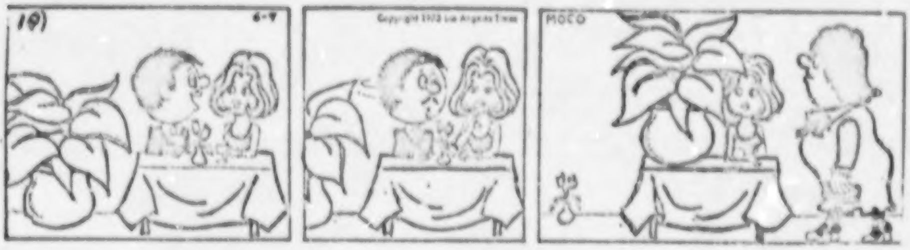
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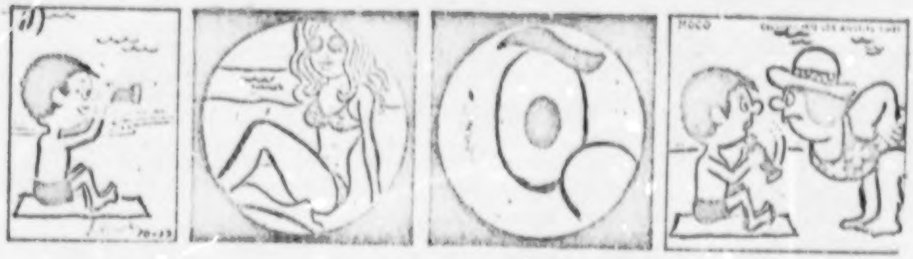
Story 11



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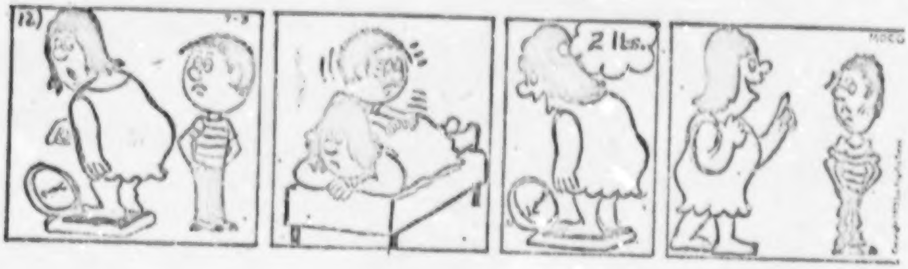
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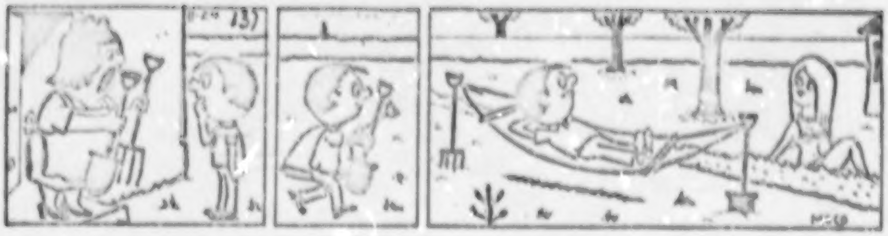

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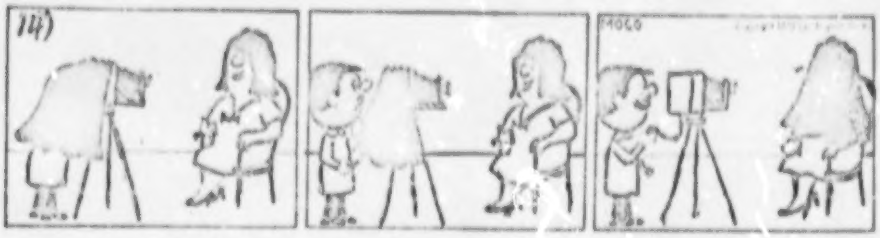

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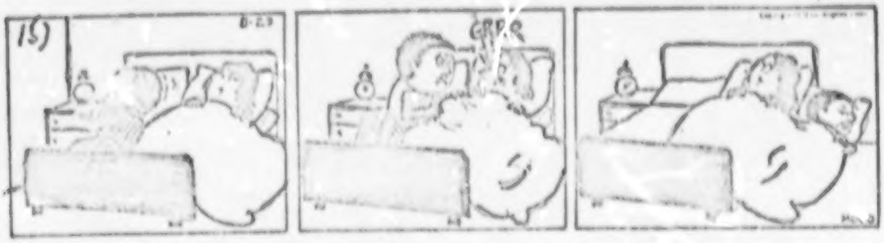

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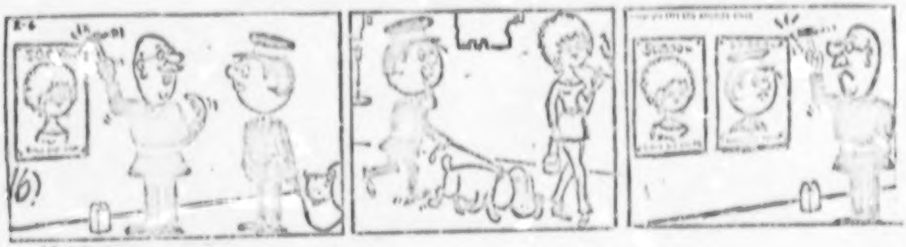

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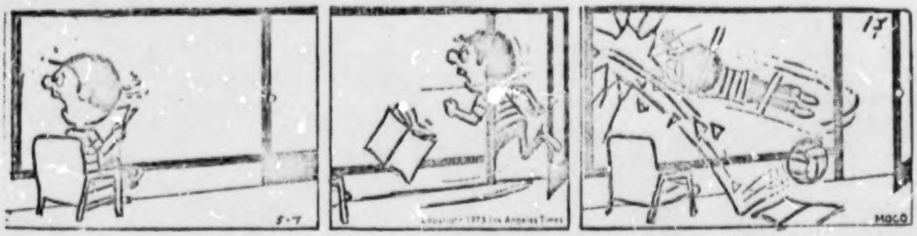
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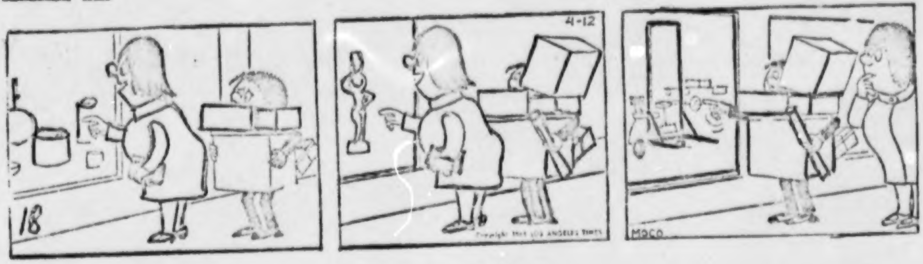
Story 18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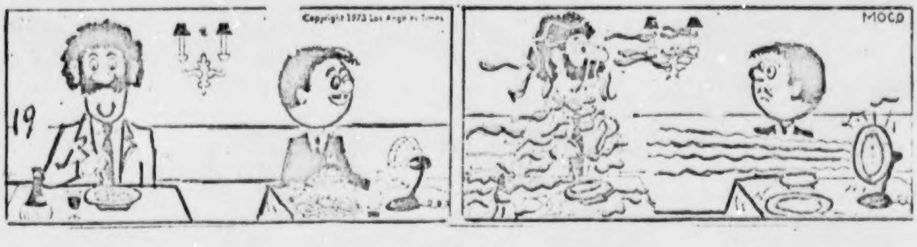
Story 19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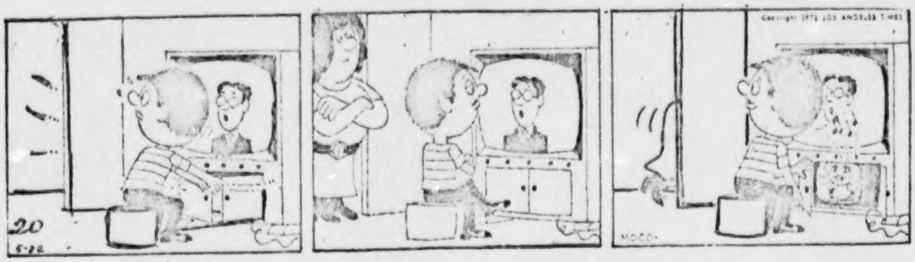
Story 20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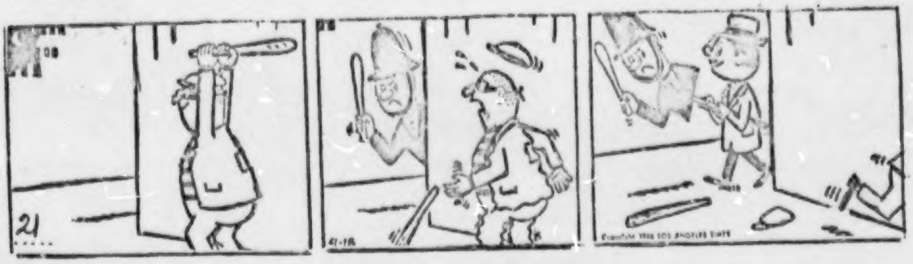
Story 21



Appendix B

TEXTS OF THE STORIES

Story 1

One day Peter was with his wife and there was a pipe which had three holes that were leaking. Then Peter's wife ordered him to cover the holes. So Peter didn't want ... didn't know what to do and then he covered the holes with his fingers and with his nose.

Story 2

A man with his girl-friend was in a kind of labyrith. They were in a small boat. The men had his arm over the girl's shoulder; while they pass for a dark place where there were ghosts the man was so interested in the ghost that he didn't realize that the ghost sat by his side and he had his arm over the ghost's shoulder.

Story 3

In the garden a man is admire a beautiful girl and his wife is looking at him. The sun is shining too much and the plants growing rapidly and he didn't see any more and his wife is laughing at him.

Story 4

One day Mrs Smith and his son were waiting a bus and near them there was water. After a few minutes the son said, "Mother, the bus is coming" and, when the bus came, the bus wet them completely.

Story 5

A client enter to a restaurant one day and he ask the waiter to bring a plate soup. After he had, after he had brought, the client saw a fly in the plate and the client order the waiter to bring another because he couldn't eat that one.

Story 6

One evening Mrs Brown was seeing TV. She was seeing a magician; the man has a rabbit on a table. Suddenly, he makes, make it disappear. Instead of a rabbit appear a chair and at the same moment Mrs Brown left sitting on the floor.

Story 7

A boy like a tall girl and he is short. He stay in the snow and he make a ball with the snow and jump off over here and give her a kiss.

Story 8

There is a fire and there is a three firemen hard a canvass. At the window there is a man. Then he put water into the canvass and then he jump into it and the firemen are very surprised.

Story 9

One day there was a couple who were watching a film of ghost. They were very ... enjoying the film; suddenly, the boy was very surprised because one of the ghost which appeared in the film was sitted in the post of the girl.

Story 10

A man who is in a restaurant with a beautiful girl is very happy; suddenly he saw a woman who was his wife, his real wife. So he take a great vase who was, which was on the floor and put it on the table instead of the little vase who, which was on the table before.

Story 11

One day Mr Wilson was looking at a young pretty girl by means of a special lens of great length. At the moment he was looking at the pretty young girl he saw an ... a great eye looking at him very near him. He took out the lens and he saw facing him a fat woman.

Story 12

Mary was a fat woman, so he decided to take a rub and John wasn't very happy because he had to take a rub her. But after a rub Mary doesn't low her weigh so he decide to take again but John look at her very sad.

Story 13

One day Peter's wives order his husband to go work in the garden; so she gave him a spade and rake. But instead of going working he instead detours and made a hammock to look at her, his beautiful neighbour.

Story 14

The mother is taking a photograph. The photo ... the men who is taking the photograph look her and think he is very ugly; then he order to her that she must put a clothes, a black clothes, over her head. Then he smiled and take a photograph.

Story 15

Is night. Jane and Tom are sleeping. In the midnight Jane is sleeping very well and his husband is hungry because the clothes fall it. The he ... sleep on the floor.

Story 16

A policeman is about to go out on patrol and he sees the picture of a girl who is wanted and has a price on her head. When he is out on patrol, he meets the girl and she is so pretty that he goes with her so that in the end both of them are wanted and both of them have a price on their head.

Story 17

There's a man sitting on a room on a chair reading a newspaper; his head turns round, looks toward the window with an expression of astonishment on his face. He leaps up from the chair, dropping his paper, opens the door that's next to the window, runs out into the street and leaps ineffectually to catch a ball that is running through the air. He fails to catch it, smashes through the window and bounces on the ground inside the room where he had been standing.

Story 18

A man and wife shopping. The wife is pointing at goods in a shop window. The husband looks despairingly, being overladen with boxes already the wife has bought. She continues to point at new articles, which they buy, and he then points at another window which contains a fork-lift, to carry all boxes, rather then buying any more goods.

Story 19

Two men sitting in a restaurant, both contemplating a spaghetti. One man, on the right, feels rather warm; so, there's a fan placed on the table, so he puts this fan on. The second picture shows a look of astonishment on the other gentleman's face when the fan blows all the spaghetti all over his face.

Story 20

The youth's watching television and he hears a knock on the door. His mother enters and she sees him watching what looks like a very respectable television program, and, in fact, soon after that the mother leaves and we see him opening the bottom doors of the cabinet on which the television with a respectable programme is on, and at the bottom there's another television with a rather blue film on by the looks of it.

Story 21

The burglar is disturbed by the alarm on the wall and he's so annoyed he's going to hit it. As he's walking away he runs into a policeman --or thinks he's a policeman-- and the third picture shows where there's a statue on a stick.

Appendix C

ISOLATED ERROR TEST

(a) Texts of all four tapes
(b) Table of results
(c) Concordances of all four tapes

Text of Tape 1

1. Mary was with her husband [n̩] there was a pipe that was leaking.
2. He covered the /həuls/ with his fingers and with his nose.
3. I need different [kʰaindz] of books.
4. He's in a /læ birínθ/.
5. The girl is playing in the [gá:ɹdən].
6. The plants /grəuiŋ/ rapidly.
7. [xi] didn't come.
8. Mrs Smith and her son went abroad.
9. They were waiting for the /bʌθ/.
10. /dear wəz/ water in the street.
11. /mʌ́ðə/, the bus is coming.
12. The man [wé:t˺] [dem] completely.
13. A /kláient/ entered a restaurant one day.
14. He wants a /pleid/ˊ of soup.
15. Please bring /ənáer/.
16. She was seeing a magician.
17. A rabbit [əpí:r] instead of a chair.
18. He was sitting in the girl's /pəust/.
19. He took a great /veiz/.
20. He took the book /hwu:óz/, which was, on the table.
21. Mr [gwílsən] is at home.

22. He used a /lenθ/ of great length.
23. The eye was /lú:kiŋ/ at him.
24. He decided to take a rub.
25. John [wosn] very happy.
26. Because she had to take a rub him.
27. /mǽ rid/ doesn't lower her weight.
28. He decide to take /əgéin/.
29. [ja:n] looked at her eagerly.
30. Steven smiled at her $very_3$ sad_4
31. Peter's /waiv/ ordered her husband to leave.
32. /či:/ gave him a book.
33. /so/ she stayed home.
34. /inθtéd/ of sewing the skirt she tore it.
35. Instead of going working he stayed home.
36. He /détu:z/ in order to visit his girl-friend.
37. He made /e/ hammock.
38. He wants to look [$æt^h$] the picture.
39. /də/ mother is having her picture taken.
40. The man [xu:] is taking the photograph is tall.
41. The man look her.
42. He thinks he is very ugly.
43. He ordered [həɹ] to go.
44. She wore a [b̥læ k] dress.
45. Please buy some blue /klos/.
46. She put a shawl [óuƀə] her head.
47. He [s̥maild] and take a photograph.

48. At /mídnai/ Jane is sleeping soundly.
49. Where was [xi:s] husband?
50. I'm agraid she was [ˈãŋgri].
51. Then he slept on the$_3$ [flo:]$_2$.

Text of Tape 2

1. Mary was with her husband and // there was a pipe that was leaking.
2. He covered the /heulz/ with his fingers and with his nose.
3. I need different [k^{h}aindz] of books.
4. He's in a /lábirinθ/.
5. In the [gá:ɹdən] the girl is playing.
6. The plants are /grouin/ rapidly.
7. He /didn/ come.
8. Mrs Brown and his son went abroad.
9. /ðeə/ /wəz/ water in the street.
10. [mʌ́ðər] the bus is coming.
11. The man wét thém completely.
12. A client [enteɹ] a restaurant one day.
13. He wants a plate soup.
14. She was seeing T.V.
15. She was watching a /məgí:śən/.
16. Instead of a rabbit [əpí:ŕ] a chair.
17. At the same /mə́umen/, she left.

18. He stayed in the snow.

19. There were three firemen had a canvass.

20. He was sitting in the place of the girl.

21. A man /huː is/ in a restaurant is very happy.

22. He took a [greit˃] /vaz/.

23. He took the book /hwuː wós/, which was, on the table.

24. Pass me the little /veiz̥/.

25. Mr /wíːlsən/ is at home.

26. The eye was /lúkin/ at him.

27. He /disái/ to take a rub.

28. John wasn't very /hǽpiː/.

29. Mary doesn't low her weight.

30. He decided to /tei/ again.

31. John /luːk/ at her eagerly.

32. Steven smiled at her very $_2$[sæd̥]$_4$.

33. /píːtaz/ wife ordered her husband to leave.

34. She /gei/ him a book.

35. [instéd̥] of sewing the skirt she tore it.

36. Instead going to work he stayed home.

37. He /diːtúz/ in order to visit his girl-friend.

38. He wants to [lug̊] at the picture.

39. The /máðə/ is having her picture taken.

40. The man who's taking /də/ photograph is tall.

41. The man /luːk/ her.

42. He /θiŋ/ he's very ugly.

43. He ordered /he/ to go.
44. She wore a [blæk˃] dress.
45. Please buy some blue /klos/.
46. She put a shawl [óubə] her head.
47. He [ṣmaild] and take a photograph.
48. Jane is sleeping /béri/ well.
49. At /mídnai/ Jane is sleeping soundly.
50. Where was he [xʌ́sbənd] ?
51. I'm afraid she was /ǽŋgri:/.
52. Then he slept on the $_2$[flǒ]$_4$.

Text of Tape 3

1. He's in a /lábərinθ/.
2. The girl is playing in the [gádən].
3. The plants are /grəuin/ rapidly.
4. He /di:dnt/ come.
5. They were waiting the bus.
6. We were sitting néar /dem/.
7. The man [wé:t˃] them completely.
8. A client entered to a restaurant one day.
9. After the waiter had [bro^t] the soup the client saw a fly in it.
10. He was /si:in/ the case.
11. She was watching a /məǰí:śən/.
12. Instead of a rabbit appeared a [ćeaŕ].

13. At the same moment she left.

14. He was staying in the snow.

15. There were three firemen held a canvass.

16. He was sitting in the girl's /post/.

17. A man /hú: íz/ in a restaurant is very happy.

18. Suddenly he saw his wife.

19. He [tuk˃] a great vase, /vaz/

20. He took the book /hu: oz/, which was, on the table.

21. The pen was on the /floa/.

22. Pass me the little /beiz/.

23. Mr /wílsəŋ/ is at home.

24. He used a lens of [greit˃] length.

25. I need a /spí:śəl/ book.

26. The eye was lóoking at [xim].

27. He decided to /tei/ a rub.

28. John wasn't very /hápi/.

29. Mary doesn't lower her /wei/. (weight)

30. He /di:sái/ to take again.

31. John /lu:kt/ at her eagerly.

32. Steven smiled at her very $_{2}$/sæd/$_{4}$

33. Peter's /waivz/ ordered her husband to leave.

34. She gáve /xim/ a book.

35. /istéd/ of going to work he stayed home.

36. Instead of /soiŋ/ the skirt she tore it.

37. He /dí:tuəz/ in order to visit his girl-friend.

38. He wants [t˃ u] look at the picture.
39. The /mʌ́də/ is having her picture taken.
40. /də/ men arrived yesterday.
41. The man who is /téikin/ a photograph is tall.
42. The man look $_2$[xer]$_4$.
43. He thinks [xi:] is very ugly.
44. He ordered [xə:] to go.
45. Please buy some blue [ḳloθ].
46. She put a shawl over her head.
47. [xi:] smiled and take a photograph.
48. In the midnight Jane is sleeping very well.
49. Where was her /hásbənd/ ?
50. The clothes fall it.

Text of Tape 4

1. He's in a /læ̂bərínθ/.
2. In the [ˊgǎdən] the girl is playing.
3. The plants are growing /rá:pidli/
4. He /dídint/ come.
5. They were /wéitin/ for the bus.
6. There was water /ni:ə/ them.
7. We were sitting néar thém.
8. The man wét /dem/ completely.
9. A client entered a |r̃éstoŕan| one day.
10. Please /brig/ another.

11. She was watching /ti: bí:/.

12. She was watching a /maʝíśən/.

13. A rabbit appeared instead of a [ćeaŕ].

14. At the same /mó:ment/ she left.

15. He was in the snow.

16. There were three firemen who [höt] a canvass.

17. He was sitting in the [gǒlz] place.

18. A man [xuz] in a restaurant is very happy.

19. Suddenly he saw a woman who was his wife.

20. He [teik˃] a great vase.

21. He took the book /hu wóz/, which was, on the table.

22. The pen was /an/ the floor.

23. Pass me the /lí:təl/ /vaz/.

24. /í:stə/ Wilson is at home. (Mister)

25. He used a lens of great /lenθ/ .

26. The eye was looking at $_3$him$_2$ (statement)

27. He decided to take a /rʌp/ (rub)

28. John wasn't very [xǽ pi].

29. Mary /dəsn/ lower her weight.

30. /xi:/ decided to take again.

31. John looked at hér eagerly.

32. Peter wife ordered her husband to leave.

33. She gave hím a book.

34. /instét/ of going to work he stayed home.

35. Instead of /səuin/ the skirt she tore it.

36. He /dí:tus/ in order to visit his girl-friend.
37. He made a [hǽməg̥].
38. The mother /əs/ having her picture taken.
39. The men arrived yesterday.
40. The man who /is/ taking a photograph is tall.
41. The man look $_3$ her $_2$ (statement)
42. He thinks /xi:z/ very ugly.
43. He order to her that she must go.
44. She wore /e/ black dress.
45. Please buy some blue /kloudz/.
46. She put a shawl [óuvəŕ] her head.
47. He smiled and take a photograph.
48. Jane is sleeping /véra/ well.
49. At /mîdnáit/ Jane is sleeping soundly.
50. Where was her /hʌ́sbən/ ?
51. The clothes fell it.
52. Then he sleep on the floor.

(b) Table of results

TOTAL DECODED

Sentence	Tape One		Tape Two		Tape Three		Tape Four	
	N	%	N	%	N	%	N	%
1	4	31	9	90	2	20	4	40
2	7	54	9	90	10	100	10	100
3	13	100	10	100	10	100	10	100
4	1	8	3	30	10	100	6	60
5	13	100	10	100	8	80	10	100
6	12	92	10	100	10	100	10	100
7	13	100	10	100	6	60	10	100
8	13	100	10	100	9	90	10	100
9	12	92	10	100	9	90	10	100
10	13	100	8	80	0	0	7	70
11	13	100	9	90	9	90	9	90
12	13	100	10	100	8	80	9	90
13	13	100	10	100	10	100	9	90
14	13	100	6	60	9	90	10	100
15	2	20	9	90	8	80	9	90
16	13	100	10	100	0	0	2	20
17	13	100	10	100	9	90	10	100
18	11	85	9	90	10	100	10	100
19	1	8	10	100	10	100	10	100
20	3	23	10	100	10	100	10	100
21	13	100	10	100	10	100	7	70
22	0	0	10	100	0	0	10	100
23	13	100	9	90	10	100	10	100
24	4	31	10	100	10	100	7	70
25	13	100	7	70	9	90	10	100
26	5	38	10	100	10	100	10	100
27	11	85	9	90	6	60	0	0
28	7	54	10	100	10	100	10	100
29	2	15	7	70	0	0	10	100
30	12	92	0	0	10	100	10	100
31	13	100	8	80	10	100	10	100
32	11	85	9	90	10	100	4	40
33	13	100	10	100	10	100	10	100
34	13	100	7	70	10	100	10	100
35	13	100	10	100	10	100	7	70
36	0	0	10	100	6	60	8	80
37	13	100	3	30	8	80	3	30
38	13	100	10	100	10	100	9	90
39	13	100	9	90	10	100	10	100
40	13	100	10	100	10	100	10	100
41	12	92	10	100	10	100	8	80
42	13	100	8	80	10	100	9	90
43	13	100	9	90	10	100	10	100
44	13	100	9	90	10	100	10	100
45	11	85	2	20	10	100	9	90
46	13	100	10	100	10	100	10	100
47	10	76	8	80	10	100	3	30
48	12	92	10	100	10	100	9	90
49	13	100	10	100	10	100	10	100
50	3	23	10	100	0	0	10	100
51	13	100	10	100	0	0	8	80
52	0	0	10	100	0	0	9	90

(c) Concordances of sentences in all four tapes

Sentence numbers

Tape 1	Tape 2	Tape 3	Tape 4
1	1	-	-
2	2	-	-
3	3	-	-
4	4	1	1
5	5	2	2
6	6	3	3
7	7	4	4
8	8	-	-
9	10	5	5
10	9	-	-
11	-	-	-
12	11	7	8
13	12	8	9
14	13	-	-
15	-	-	10
16	15	11	20
17	16	12	13
18	20	16	17
19	22, 24	19, 22	20, 23
20	23	20	21
21	25	23	24
22	-	24	25
23	26	26	26
24	27	27	27
25	28	28	28
26	-	-	(27)
27	29	29	29
28	(30)	(30)	29
29	31	31	31
30	32	32	-
31	33	33	32
32	34	34	33
33	-	-	-
34	35	36	35
35	36	35	34

Continued

(c) Concordances of sentences in all four tapes (cont.)

Sentence number

Tape 1	Tape 2	Tape 3	Tape 4
36	37	37	36
37	-	-	37
38	38	38	-
39	39	39	38
40	40	41	40
41	41	42	41
42	42	43	42
43	43	44	43
44	44	-	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48, 49	48	48,49
49	50	49	50
50	51	-	-
51	52	-	52
-	-	50	51
-	14	10	11
-	-	6	7
-	17	13	14
-	18	14	15
-	19	15	16
-	21	17	18
-	-	9	-
-	-	18	19
-	-	21	22
-	-	25	-
-	-	40	39
-	-	-	44

Appendix D

TEXTS OF THE SENTENCES USED IN THE TESTS OF CONTRASTED GRAMMATICALITY, ACCEPTABILITY AND INTELLIGIBILITY: ENGLISH

1. There was a pipe which had three holes that were leaking.
2. A man with his girl-friend was in a kind of labyrinth.
3. In the garden a man is admiring a beautiful girl.
4. He didn't see any more because the sun was shining too much.
5. They were waiting for the bus and near them there was water.
6. A client entered a restaurant one day.
7. He asked the waiter to bring another because he couldn't eat that one.
8. Mrs Brown was seeing TV.
9. She was seeing a magician.
10. Instead of a rabbit appeared a chair.
11. At the same moment, Mrs Brown was left alone.
12. A boy liked a tall girl and he was short.
13. At the window there is a man.
14. He puts water into the canvass.
15. A man who is in a restaurant with a beautiful girl is very happy.
16. He saw a woman who was his wife.
17. He put the large vase on the table instead of the little vase which was there before.
18. He was looking at a young pretty girl.
19. He was looking at her by means of a special lens.

20. At the moment he was looking at the girl he saw a big eye.

21. He saw a great eye.

22. He took out the lens.

23. He saw facing him a fat woman.

24. Instead of going to work he detoured and did something else.

25. He instead detoured and did something else.

26. In the midnight she was sleeping very well.

27. Both of them had a price on their head.

28. He's overladen with parcels already his sister has bought.

29. Please turn off the television.

30. Mary was sitting on a chair in a room, reading a book.

31. The third picture shows where there's a statue on a stick.

Appendix E

TEXTS AND RESULTS OF THE SENTENCES USED IN THE TEST OF CONTRASTED GRAMMATICALITY, ACCEPTABILITY AND INTELLIGIBILITY: SPANISH

	Intelli-bility No.	Grammati-cality No.	Accepta-bility No.
1. Habían veinte personas esperando.	10	6	7
2. No hubieron heridos en el accidente.	9	3	3
3. Se venden libros usados.	9	5	4
4. No sé si voy mañana.	10	10	8
5. Anoche no podimos dormir bien.	9	2	0
6. ¿No llegó Juan todavía?	8	4	3
7. ¿Ud. es casado o está soltero?	10	10	5
8. ¿Coso las papas ahora?	9	1	0
9. Juan cayó al suelo.	9	9	4
10. Vi a una dama que era mi señora.	8	4	2
11. Llegó Juan.	12	12	12
12. Juan habla inglés y su tía tiene una casa en Valparaíso.	9	3	3
13. María sabe bailar "soul" y Esteban sabe hablar francés.	9	11	8
14. Yo la vi a María	8	2	3
15. Dijo que está cansado.	10	3	2
16. Mismo el Presidente tiene que hacer sacrificios.	8	1	0
17. Colo-Colo resultó ser lejos el vencedor del torneo.	9	1	1
18. Me carga vivir en esta ciudad embestiada.	10	2	2
19. ¿Dónde tú vives?	10	6	4
20. No escuché el trueno.	10	8	7
Averages	9	5	4
Percentages	75	41	33
Standard Deviation	.95	3.53	3.06

N = 12

Ref. Appendix D

Appendix F

DATA CONCERNING AMOUNT AND SPEED OF VOCABULARY

Table 25

	Oral Language		Written Language	
	Adolescents	Adults	Adolescents	Adults
Standard language	1003	1117	1071	1235
Substandard language	841	976	1088	1148
	$P > 10\%$		$P \doteq 10\%$	

Table 25

VOCABULARY PER SUBSAMPLE ON A TEXT
OF 5,500 WORDS PER SUBSAMPLE

Table 26

	Oral Language		Written Language	
	Adolescents	Adults	Adolescents	Adults
Standard language	1095	2171	2170	1752
Substandard language	1649	1793	1994	2120
	$P = .2\%$		$P \doteq .2\%$	

Source: AILA 1972 Congress, L. Wigdorsky

Table 26

VOCABULARY PER SUBSAMPLE ON A TEXT OF
5,500 WORDS PER SUBSAMPLE PROJECTED
TO 11,000 WORDS

Table 27

Words of text / Diff. words	STANDARD SPEAKERS				SUBSTANDARD SPEAKERS				Totals
	Oral Language		Written Language		Oral Language		Written Language		
	Adolesc.	Adults	Adolesc.	Adults	Adolesc.	Adults	Adolesc.	Adults	
1,000	295	289	382	364	194	303	365	360	1276
2,000	482	521	646	602	332	451	528	556	2059
3,000	672	776	822	817	501	601	717	700	2803
4,000	838	937	899	988	650	753	871	851	3394
5,000	948	1057	968	1136	776	897	1022	1102	3953
5,500	1003	1117	1071	1235	841	976	1088	1148	4435
11,000 x	1905	2171	2170	1752	1649	1793	1994	2120	7318 xx
Rank / 5500	6	3	5	1	8	7	4	2	
Rank /11000	5	1	2	7	8	6	4	3	
Rank difference	1	2	3	-6	0	1	0	-1	
Diff. 11000 / 5500	902	1054	1099	517	808	817	906	972	
% increase	90.1	64.7	102.6	41.8	96.7	83.8	83.1	84.5	64.7
Vocabulary: text	$\frac{5.5}{10}$	$\frac{5.0}{10}$	$\frac{5.1}{10}$	$\frac{4.4}{10}$	$\frac{6.5}{10}$	$\frac{5.6}{10}$	$\frac{5.1}{10}$	$\frac{4.7}{10}$	$\bar{x}$ $\frac{5.25}{10}$ $\frac{1.0}{10}$

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x Projected by fitting a straight line.
xx Projected through the application of 64.7%, average increase.
Source: AILA 1972 Congress, L. Wigdorsky.

Table 27

TENDENCIES OF VOCABULARY INCREASE AND PROJECTIONS PER SUBSAMPLE AND FOR THE TOTAL SAMPLE, WITH INFORMATION CONCERNING VOCABULARY RANKS (ACTUAL AND PROJECTED), ACTUAL AND PORCENTUAL VOCABULARY INCREASE FROM THE ACTUAL DATA TO THE PROJECTED FIGURES AND RATIOS BETWEEN 'DIFFERENT WORDS' (VOCABULARY) AND 'WORDS OF RUNNING TEXT', PER SUBSAMPLE AND FOR THE TOTAL SAMPLE WHERE APPLICABLE.

Table 28

SPANISH

	Words	Morphemes	Syllables
University professional, M *	97.9	121.4	189.4
TV panel discussion, MMMMM	135.1	177.8	269.1
Stage, MM	91.5	134.9	171.8
TV series **, MMFF *	105.9	126.8	182.7
Sports commentators, MMMM	179.8	273.1	347.8
Radio announcer/commentator, F	169.9	231.7	348.4
TV announcer/comentator, F	164.8	224.5	355.1
Secondary school pupils, MM ***	138.6	157.7	243.1
Secondary school pupils, FF ***	156.5	183.9	265.0
Substandard speakers, MMM	80.1	89.5	168.2
Substandard speakers, FF	150.2	175.8	240.2
Secondary school lecture, M	121.4	155.8	219.0
President's Address to Congress, M	109.4	148.6	167.0
University students, FF	121.1	138.7	244.2
Averages ****	131.7	170.7	249.5

Ratios:		
	Morphemes/word	1.296
	Syllables/word	1.876

ENGLISH

	Words	Morphemes	Syllables
Speaker of American Standard, M	134.1	159.9	179.9
Speaker of American Standard, M	225.9	244.2	310.7
Two fairly advanced foreign speakers FF	124.2	142.4	155.3
Drama, Received Pronunciation, MM	158.7	189.0	173.5
Film, American Standard, MF	146.0	163.3	178.9
Course X, for foreign learners, MMF	154.7	173.9	186.1
'RP' speaker, F	140.0	165.2	175.3
Advanced foreign speakers, FF	180.1	204.6	225.6
Voice of America, M	158.6	186.3	234.7
Voice of America, FF	95.2	175.1	213.1
British film, 'RP', MMF	143.2	162.7	178.4
Course Y, for foreign learners, M	121.5	145.1	156.1
Averages ****	148.5	176.0	197.3

Ratios:		
	Morphemes/word	1.185
	Syllables/word	1.328

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* M (male), F (female); the number of such letters indicates the number of corresponding speakers in each subsample.

** Spoken in Mexican, Peruvian, Portorrican and other regional varieties of standard Spanish. The remaining subsamples for Spanish consist of Chilean Spanish, and standard --unless otherwise indicated.

*** Fifteen or sixteen years old. Adults (20-45) speak in the rest of the sample, both for English and for Spanish.

**** Eng. $\bar{x}$ words & syllbs. Cf. Sp. $\bar{x}$ words & syllbs., P = .2% χ^2 = 21.91

Source: AILA 1972 Congress, L. Wigdorsky

Table 28

SPEED OF SPEECH PER MINUTE BASED ON SUBSAMPLES OF FIFTEEN MINUTES